Duke Energy Carolinas, LLC
Docket No. 2018 - 319 - E
Amortize deferred environmental costs
For the test period ended December 31, 2017

SC-1808
Page 1 of 1
Supplemental

Coal Ash Non ARO System

Line No.	Description	(a) System Plant Balance	(b) Plant Adds	(c) % to SC for Spend	(d)=(a)x (c) SC Plant Balance	(e)=(b)x (c) / 2 SC Plant Adds	(f) = YTD (k) Accumulated Depreciation	(g)=sum of (d) thru (f) SC Rate Base for Return	(h) = (g) x cost of debt Compounded monthly Deferred Cost of Debt	(i) = (g) x cost of equity Compounded monthly Deferred Cost of Equity	(j)=(h)+(i) Compounded monthly Total Cost of Capital	(k) Deferred Depreciation	(l)=(j)+(k) x cost of capital/2 After tax return on Deferred Expenses	(m)=(j) + (k) + (l) Ending Balance
		Note 1	Note 2	Note 3		Note 4			Note 5	Note 5	Note 6		Mid-Month convention	
1														
2	Jan-18	$ -	$ 32,555	24.0911%	$ -	$ 3,921	$ -	$ 3,921	$ 8	$ 24	$ 32	$ -	$ 0.1	$ 32
3	Feb	32,555	(67,828)	24.0911%	7,843	(8,170)	(23)	(351)	(1)	(2)	(3)	23	0	52
4	March	(35,273)	8,789,919	24.0911%	(8,498)	1,058,794	2	1,050,298	2,172	6,305	8,477	(25)	26	8,530
5	April	8,754,646	73,806	24.0911%	2,109,090	8,890	(5,293)	2,112,688	4,369	12,682	17,051	5,294	119	30,994
6	May	8,828,451	64,086,871	24.0911%	2,126,871	7,719,616	(10,490)	9,835,997	20,341	59,042	79,383	5,197	444	116,019
7	June	72,915,323	12,740,215	24.0911%	17,566,103	1,534,629	(53,899)	19,046,833	39,389	114,332	153,721	43,409	1,300	314,448
8	July	85,655,538	2,119,064	24.0911%	20,635,361	255,253	(106,234)	20,784,380	42,982	124,762	167,744	52,335	2,571	537,098
9	Aug	87,774,602	19,711,255	24.0911%	21,145,867	2,374,329	(160,132)	23,360,064	48,309	140,223	188,531	53,898	3,987	783,515
10	Sept	107,485,857	20,994	24.0911%	25,894,525	2,529	(226,698)	25,670,356	53,086	154,091	207,177	66,566	5,575	1,062,832
11	Oct	107,506,852	158,410,869	24.0911%	25,899,583	19,081,460	(293,223)	44,687,821	92,414	268,246	360,660	66,525	7,731	1,497,749
12	Nov	265,917,721	52,985	24.0911%	64,062,504	6,382	(473,688)	63,595,198	131,515	381,741	513,256	180,465	11,173	2,202,643
13	Dec	265,970,706	153,819,620	24.0911%	64,075,269	18,528,419	(654,245)	81,949,443	169,471	491,915	661,386	180,557	15,891	3,060,478
14	Jan-19	419,790,326		24.0911%	101,132,107	-	(941,629)	100,190,478	207,194	601,410	808,604	287,384	21,857	4,178,322
15	Feb	419,790,326		24.0911%	101,132,107	-	(1,229,013)	99,903,094	206,600	599,685	806,284	287,384	28,620	5,300,610
16	March	419,790,326		24.0911%	101,132,107	-	(1,516,397)	99,615,711	206,005	597,960	803,965	287,384	35,411	6,427,370
17	April	419,790,326		24.0911%	101,132,107	-	(1,803,780)	99,328,327	205,411	596,235	801,646	287,384	42,229	7,558,629
18	May	419,790,326		24.0911%	101,132,107	-	(2,091,164)	99,040,943	204,817	594,510	799,326	287,384	49,074	8,694,413
19														
20		$ 419,790,326	$ 419,790,326		$ 101,132,107	$ 50,566,054	$ (9,565,906)		$ 1,634,082	$ 4,743,157	$ 6,377,239	$ 2,091,164	$ 226,009	

Steam Production composite depreciation rate 3.41%
Source: SC-1002 - Steam Production plant
Used for forecasted months depreciation expense

Note 1: Beginning balance Provided by Asset Accounting
Note 2: Actuals provided by Asset Accounting; forecast provided by Forecasting group
Note 3: SC 1805 Demand at Generation allocation factor
Note 4: Assumes mid month convention on plant adds
Note 5: Cost of debt and equity for each year of the deferral is represented on SC 1806
Note 6: Total cost of capital after tax from SC1806
Note 7: Assumes Rates effective date of 6/1/2019

EXHIBIT DJW - 3.5.8

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

DOCKET NO. 2018-319-E

In the Matter of Application of Duke Energy Carolinas, LLC For Adjustments in Electric Rate Schedules and Tariffs	)))))	**DIRECT TESTIMONY OF DR. JULIUS A. WRIGHT FOR DUKE ENERGY CAROLINAS, LLC**

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, OCCUPATION, TITLE AND BUSINESS ADDRESS.

A. Julius A. Wright, Managing Partner, J. A. Wright & Associates, LLC, 18 Edgewater Drive, Cartersville GA, 30121. I am a consultant to regulated utilities and regulatory agencies and other public bodies on issues related to economics, economic modeling, regulatory policy, industry restructuring, demand-side investments, and resource planning.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this testimony on behalf of Duke Energy Carolinas, LLC ("DE Carolinas," or the "Company").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL EXPERIENCE.

A. I received an undergraduate degree from Valdosta State College (BS Chemistry), an MBA in Finance from Georgia State University, and a Master's and Ph.D. in Economics from North Carolina State University, where I focused on regulatory and environmental economics. Among other past experiences, I served as a Commissioner on the North Carolina Utilities Commission ("NCUC" or the "Commission") from 1985 to 1993. Prior to serving as a member of the Commission, I served three terms as a North Carolina State Senator and worked in process engineering for 12 years at three chemical plants, the last with Corning in Wilmington, NC.

Over the past 25 plus years in my consulting practice, I have dealt extensively with electric and natural gas utilities focusing on a number of issues. In this context, I have testified before regulatory commissions and legislative bodies, presented studies and authored reports on issues related to electric and gas regulation, and I have been a guest speaker at the Bonbright Conference, other seminars, and at the Georgia Institute of Technology. I have been a visiting professor teaching both microeconomics and macroeconomics courses at the University of The Virgin Islands. I was also one of three economists engaged by the California State Auditor to examine the problems that led to that state's electric energy crisis in the summer and fall of 2000. I have worked for the last 20 plus years in the field of electric and gas regulation, primarily in the Southeast. A copy of my resume is attached as Wright Exhibit 1.

Q. PLEASE DISCUSS THE PURPOSE OF YOUR TESTIMONY.

A. The purpose of my direct testimony is to support DE Carolinas' request to recover costs incurred for coal ash disposal in response to new, more stringent environmental regulatory requirements.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. The next section of my testimony begins with a discussion of the general regulatory principles dealing with the recovery of environmental costs incurred by electric utilities in South Carolina. In Section III, I provide a brief historical review of coal ash disposal regulations, how these regulations have evolved over time, and how these evolving regulations have impacted the

Company. I conclude in Section IV by discussing why I believe DE Carolinas' proposed coal ash related expenses in this filing should be recoverable as recommended in the application and Company witnesses' testimony.

II. BACKGROUND: RECOVERY OF ENVIRONMENTAL COSTS

Q. WHAT ARE RECOVERABLE COSTS AS THEY RELATE TO ELECTRIC UTILITY EXPENDITURES IN SOUTH CAROLINA?

A. Recoverable costs include costs that are just and reasonable and used and useful in the provision of adequate, safe, reliable, and reasonable electric service to a utility's customers. Specifically, South Carolina Code of Laws § 58-27-810 declares the "rates shall be just and reasonable," and this standard is repeated in S.C. Code Ann. § 58-27-850. With respect to the "used and useful" standard, South Carolina, like other states, has defined used and useful utility property as "property which it [the utility] necessarily devotes to rendering the regulated services" and has allowed recovery for such property in rates. *Hamm v. S.C. Pub. Serv. Comm'n*, 309 S.C. 282, 286 n. 1, 422 S.E.2d 110, 112 n. 1 (1992) (quoting *Southern Bell Tel. & Tel. Co. v. Pub. Serv. Comm'n of S.C.*, 270 S.C. 590, at 600, 244 S.E.2d 278, at 283 (1978)).

The "used and useful" standard in South Carolina was further clarified in a Commission Order as it relates to rate base as "[t]he rate base is comprised of the value of the Company's property used and useful in providing retail electric service to the public…" Order 87-1381, December 30, 1987, page 15.

With respect to the provision of service standards, the Commission's Code of Regulations Section 103-301(2) states the purpose of the Code of Regulations is to *"to define good practice…..intended to insure adequate and reasonable service."* All of these policies, along with safety and reliability, are further embodied in the Code of Regulations in Sections 103-360 which states, *"[t]he electric plant of an electrical utility shall be constructed, installed, maintained and operated in accordance with good engineering practice to assure, as far as reasonably possible, continuity of service, uniformity in the quality of service, and the safety of persons and property."*

As I discuss further herein, because environmental compliance costs are a necessary used and useful cost of providing safe, reliable and adequate electric service, then it follows that these types of costs – and a return on those costs – are recoverable in rates.

Q. ARE ENVIRONMENTAL COMPLIANCE COSTS SIMILAR TO OTHER COSTS A UTILITY MIGHT SPEND IN PRODUCING AND DELIVERING POWER?

A. Yes. The Company incurs costs in compliance with environmental laws and regulations, similar to other costs necessary for the generation of electric power. This includes costs like scrubbers or coal ash facilities which can be rate base type expenses which costs would be recovered over time. Other environmental costs related to the treatment of pollutants, like ammonia and lime, or the cost of emission allowance for SO2, NOx, mercury, and particulates, are all variable environmental costs and are generally recoverable

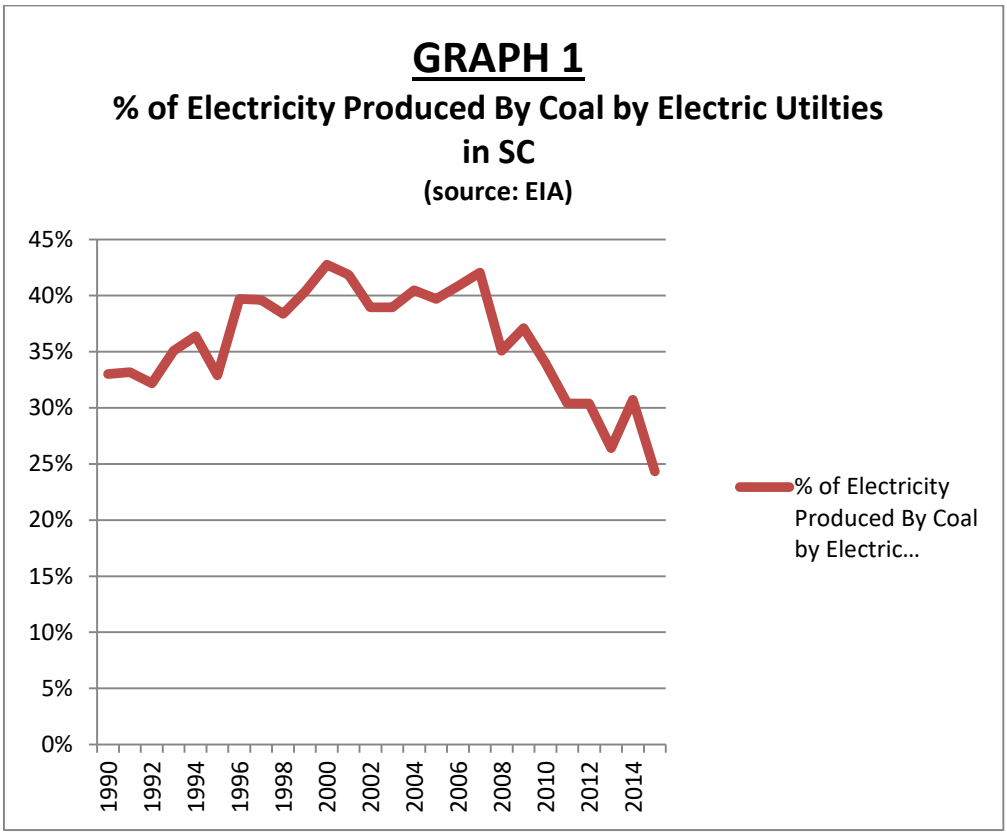
through the fuel adjustment rider in South Carolina. *See* S.C. Code Ann. § 58-27-865. All of these environmental costs are necessary for compliance with environmental standards and, like nuclear decommissioning costs or coal plant retirement costs, based on my experience and knowledge of fuel adjustment cost recovery mechanisms in many states, these types of costs have long been deemed recoverable by utilities across the country, including DE Carolinas.

It should also be recognized that the coal plants associated with these costs have been used and useful in providing low-cost, reliable power to South Carolina customers for more than a century, and that is true regardless of whether the generating plant is located in South Carolina or North Carolina – all of the Company's generating units provide service on a systemwide basis to both states. Consequently, these types of costs and, if any amount is deferred over time, a return would be appropriately recoverable in rates to ensure that the Company received the equivalent of the full amount of those costs.

Q. PLEASE DISCUSS WHY YOU HAVE CONCLUDED THAT THESE COAL-FIRED ELECTRIC GENERATING PLANTS HAVE BEEN USED AND USEFUL AND PROVIDED BENEFICIAL ELECTRIC SERVICES TO CUSTOMERS IN SOUTH CAROLINA.

A. Coal-fired electric generation has been providing energy to South Carolina customers since the early 20th century. Since that time, coal-fired facilities have been a primary component of the fuel sources used to provide South

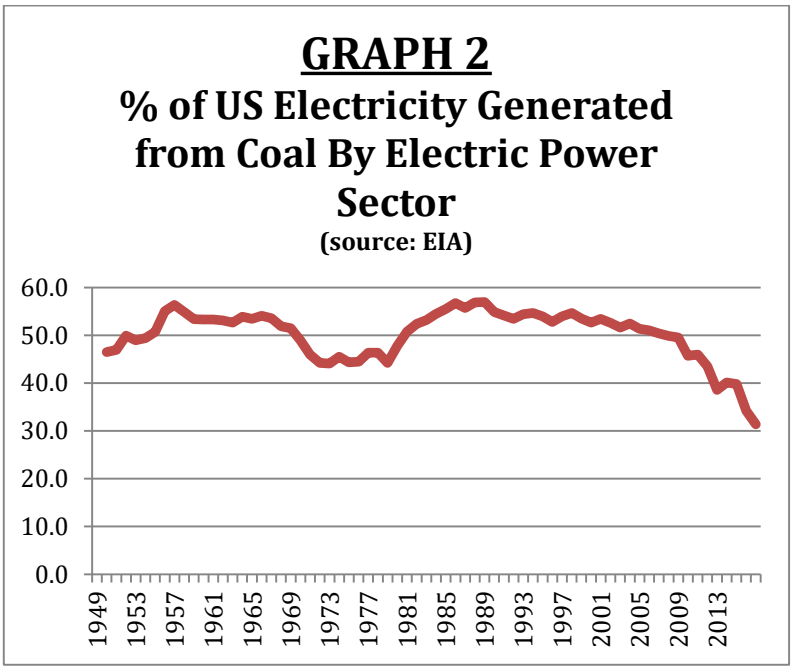
Carolinians electric energy. Graph 1 shows that since 1990 (the earliest data available for the EIA) usually more than 30% of the South Carolina's electric generation was provided by coal-fired generation.[1]



Though this dependence on coal has diminished in the past few years because of new environmental standards, coal-fired generation continues to be an important component of DE Carolinas' generation in South Carolina. For a more historic perspective on the importance of coal to the nation's electric industry, Graph 2 indicates that for the past seven decades coal has provided

[1] This was the latest statewide data available from the EIA when the first draft of this testimony was developed. See State Historical Tables for 2015 (October 2016 as revised November 2016) (https://www.eia.gov/electricity/data/state/).

the fuel to produce about 50 % of the nation's electric energy.[2] It should be noted that coal was chosen as a fuel source, both in South Carolina and nationwide, primarily on the basis of economics, meaning that at the time it was the least costly, reliable option to use as a generation fuel resource. Because of this economic fact, but for the use of coal-fired generation, historical electric prices in the State and nationwide would have been higher.

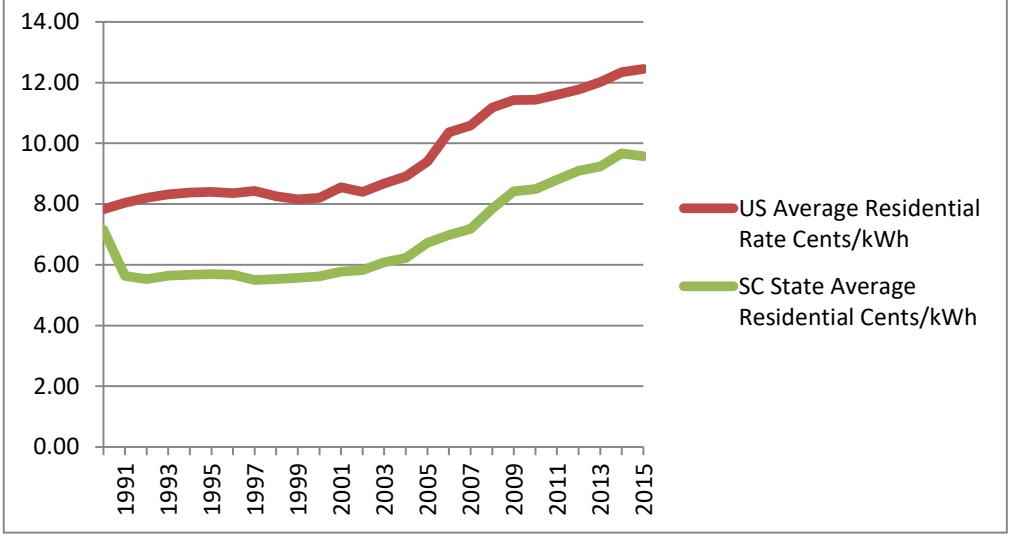


In addition, the use of DE Carolinas' coal-fired generation has directly benefitted the State's customers by virtue of the fact that South Carolina's average retail electric rates have historically been below the national average. This is shown in Graph 3, which provides a historical comparison of the State's average electric price to the nation's. As Graph 3 indicates, the State's average electric prices have been below the national average since at least

[2] This was the latest nationwide data available from the EIA. See April 2017 Monthly Energy Review, Table 7.2b Electricity Net Generation: Electric Power Sector (April 25, 2017) (https://www.eia.gov/totalenergy/data/monthly/archive/00351704.pdf).

1990, which is the first year this state-level data was available at the EIA.[3] These below national average electric rates have been a significant economic benefit to South Carolina and its electric consumers. Because electric rates are determined by the underlying cost to produce the electricity, and recognizing that coal-fired plants were chosen and are dispatched primarily for economic reasons, this simply means that the State's "below average" electric rates have been achieved in large measure because of the State's use of its coal-fired electric generation.

GRAPH 3
South Carolina Average Total Price of Electricity Compared to US Average Total Price (source: EIA)



Q. HAS THE COMMISSION ALLOWED THE RECOVERY OF COSTS RELATED TO ENVIRONMENTAL EXPENDITURES?

A. Yes. I have already discussed how some environmental costs in South

[3] This was the latest statewide data available from the EIA. See https://www.eia.gov/totalenergy/data/annual/showtext.php?t=ptb0810.

Carolina, such as ammonia, lime and other reagents, are recovered through the fuel adjustment rider. *See* S.C. Code Ann. § 58-27-865. Importantly, the recovery of other environmental costs, such as scrubbers,[4] related to environmental compliance would be consistent with the public policy of the South Carolina, which states it is "the public policy of the State to maintain reasonable standards of purity of the air and water resources of the State, consistent with the public health, safety and welfare of its citizens, maximum employment, the industrial development of the State…" (§ 48-1-20).

Consequently, in order to comply with both the State's public policy goals and remain compliant with environmental standards, the Company has made numerous investments over time in compliance with historical coal ash and other environmental regulations, as discussed at length in the direct testimony of Company Witness Kerin. It is my experience that these types of costs, including the reasonable costs associated with operating, maintaining and upgrading environmental equipment, plus a return, have been routinely recovered as a cost of service through general rate cases, whether as capital or ongoing operation and maintenance expense or some combination thereof.

In summary, when a utility invests in scrubbers to meet new and heightened environmental standards, these costs have routinely been recoverable. Similarly, when a utility invests dollars to meet new environmental coal ash remediation standards, these costs should likewise be recoverable. For example, in South Carolina the deferral balance of costs

[4] In this Commission's Docket No. 2011-271-E, costs associated with a Cliffside scrubber were amortized and in the rate base. In addition, in Docket No. 2009-226-E costs associated with scrubbers at the Allen Steam Station were amortized and in rate base.

associated with a Cliffside Unit 5 scrubber were amortized and in the rate base (Settlement Agreement, Nov. 30, 2011, Docket No. 2011-271-E, Attachment A, page 2). In addition, in Docket No. 2009-226-E costs associated with scrubbers at the Allen Steam Station were amortized and in rate base (Settlement Agreement, Nov. 24, 2009, Docket No. 2009-226-E, Attachment A, page 2).

Where state specific requirements are indicated, those costs are often shared between the two states consistent with the manner in which electrons flow. In other words, shared costs for facilities that generate or have generated electricity to both North and South Carolina are allocated between the two states.

Q. HAS THIS COMMISSION ADDRESSED THE RECOVERY OF NEW COSTS ASSOCIATED WITH COAL ASH DISPOSAL?

A. Yes. In Docket No. 2016-227-E, DE Progress was allowed to recover coal ash expenses amortized over fifteen (15) years plus the Order's approved return, albeit the Order did state that this finding had no precedential effect and will not prejudice the position of any Party in any future proceeding before the Commission.[5] In this case, the Company is asking to be allowed to recover coal ash expenses amortized over five years.

Q. HOW ARE COSTS RECOVERED WHEN THE COSTS RELATE TO FACILITIES IN TWO DIFFERENT STATES, LIKE WITH THE ELECTRIC SYSTEM IN NORTH CAROLINA AND SOUTH

[5] Order in Docket No. 2016-227-E, Dec. 21, 2016, page 11, paragraph 15.

CAROLINA?

A. Under this scenario, cost recovery depends on the type of cost. Some state specific costs, unless directly assigned, are shared, or allocated, between both states. In other words, shared costs for facilities that generate or have generated electricity to both North and South Carolina are usually allocated between the two states. These type of costs include a variety of things such as workers compensation type costs, differences in everyday operating costs like employees expenses, contractor expenses, fuel costs, and even costs like fuel transportation which can be different depending on the location of a generating station (for example, rail service from coal mines to North Carolina can be different, and usually cheaper because of distance, then rail service to South Carolina). In addition, property taxes in South Carolina are higher than property taxes in North Carolina, however these taxes for system assets like generation plants are allocated to the whole system and not recovered on a state specific basis.

Q. HAVE NORTH CAROLINA AND SOUTH CAROLINA SHARED ENVIRONMENTAL EXPENSES PRIOR TO THIS CASE?

A. Yes. For example, the Cliffside and Allen generating stations' scrubbers mentioned above have been costs shared between the two states. This cost sharing is common where a utility's operations span multiple states and the utility property used to provide one particular state's electric service may be located in another state. Also, the Company has entered into a Consent Agreement with the South Carolina Department of Health and Environmental

Control (and a related Settlement Agreement with several environmental groups) dealing with coal ash at the W.S. Lee facility, and the costs associated these South Carolina agreements are shared with North Carolina customers. Additional examples of states sharing environmental costs would be the Southern Company utilities in Georgia, Alabama, Mississippi, and Florida, and Entergy with electric utility services in Mississippi, Arkansas, Louisiana, and Texas. In addition, coal ash disposal costs and beneficial reuse revenues have to date been allocated and shared between both states.

III. A BRIEF REVIEW OF THE HISTORY OF COAL ASH DISPOSAL STANDARDS

Q. PLEASE DISCUSS SOME OF THE INITIAL COAL ASH DISPOSAL STANDARDS.

A. The Company's electric power generation from burning coal dates back to the 1920's. All of the Company's coal plants produced coal combustion residuals or "CCRs" as fly ash and bottom ash as direct by-products of the coal combustion process. In the 1950's the electric utility industry began to transport bottom ash by water sluicing to constructed surface impoundments, which we commonly refer to as ash basins. Over time, as discussed in more detail in the direct testimony of Company Witness Kerin, the Company has consistently followed industry standard practices in compliance with coal ash regulation.

Q. DID THE COMMISSION ALLOW THE STATE'S ELECTRIC UTILITIES TO RECOVER THE COSTS ASSOCIATED WITH THESE EARLIER COAL ASH DISPOSAL REGULATIONS?

A. Yes. As I mentioned earlier, these types of expenses have been routinely recovered as a cost of service and included in rate cases including the reasonable costs associated with operating, maintaining and upgrading environmental equipment. The cost recovery for these rate-based environmental costs also usually included a return. Also, as I mentioned earlier, in Docket No. 2016-227-E, the Commission allowed DE Progress to recover coal ash expense amortized over fifteen (15) years plus the Order's approved return.[6]

Q. HOW HAVE THE COAL ASH DISPOSAL STANDARDS CHANGED OVER THE PAST DECADE?

A. Coal ash use and disposal has been studied by the Environmental Protection Agency ("EPA") since the mid-1980s. After several studies and some limited regulatory standards, on May 22, 2000, the Environmental Protection Agency ("EPA") determined the need to regulate coal combustion wastes that are disposed in landfills and surface impoundments under Subtitle D (applicable to non-hazardous waste) of the Resource Conservation and Recovery Act.

On December 22, 2008, a dike at a surface impoundment at Tennessee Valley Authority's ("TVA") Kingston Fossil Plant in Harriman, Tennessee, failed. In part as a response to this TVA accident, on June 21, 2010, the EPA published in the Federal Register proposed new coal ash disposal regulations for CCRs.[7] The proposed regulations specifically referenced the TVA

[6] Order in Docket No. 2016-227-E, Dec. 21, 2016, page 11, paragraph 15.
[7] Federal Register/Vol. 75, No. 118/Monday, June 21, 2010/Proposed Rules, page 35128.

incident as a major reason for the proposed rule.[8] The EPA's proposed coal ash disposal rule also discussed several other coal ash incidents that led to the promulgation of the rule:

> *"at the time of the May 2000 Regulatory Determination, the Agency was aware of 14 cases of proven damages and 36 cases of potential damages resulting from the disposal of CCRs. The Agency has since learned of an additional 13 cases of proven damages and 4 cases of potential damages, including a catastrophic release of CCRs from a disposal unit at the Tennessee Valley Authority (TVA) Kingston facility in Harriman, Tennessee in December 2008. In total, EPA has documented 27 cases of proven damages and 40 cases of potential damages resulting from the disposal of CCRs. Proven damage cases have been documented in 12 states, and potential damage cases—in 17 states."*[9]

A more thorough discussion of these newer coal ash disposal regulations is contained in the testimony of Company Witness Kerin.

Q. DID THE ACCIDENTAL COAL ASH SPILL AT THE COMPANY'S DAN RIVER FACILITY IMPACT THE FINAL CCR RULE?

A. No. First, it is important to note that the EPA's proposed rule's publication date precedes the February 2, 2014 coal ash release accident at the Dan River Steam Station ("Dan River"), and the Dan River accident was not mentioned in the EPA's proposed rule, nor could it have been, as a reason for establishing the rule. Later, the finalized EPA rule, signed on December 19, 2014, and published in the *Federal Register* (FR) on April 17, 2015 (the "CCR Rule"),[10] did reference the Dan River accident, but it did not indicate that the accident modified the proposed rule. Second, in promulgating the

[8] IBID, page 35132.
[9] IBID, pages 35143, 35143.
[10] See Federal Register/Vol. 80, No. 74/Friday, April 17, 2015/Rules and Regulations, page 21343; 21393-94.

CCR Rule the EPA cited hundreds of potential risks or incidents with ash ponds similar to Dan River that led to the adoption of the Rule. Based on the citing of these numerous incidents along with the timing of the CCR Rule, I would conclude that the Dan River accident did not change the CCR regulations, although it probably added support for the EPA's proposals.

Q. HOW DID THE ACCIDENTAL COAL ASH SPILL AT THE COMPANY'S DAN RIVER FACILITY IMPACT NORTH CAROLINA'S CAMA LAW?

A. Based on my review, it likely impacted the timing, but I cannot conclude that it impacted the substance of the standards. There is no doubt that the Dan River spill certainly helped prompt the North Carolina General Assembly to examine the State's and national coal ash disposal policies and regulations. Out of that legislative investigation came North Carolina's Coal Ash Management Act ("CAMA"). However, some four years prior to the Dan River accident, the EPA had already proposed, and was close to finalizing, its new coal ash regulations. I feel confident the EPA's proposed coal ash regulations helped inform the State's legislative leaders regarding the language contained in CAMA for several reasons. First, having served in the North Carolina General Assembly, I am sure that the legislative process leading to CAMA included an investigation of, and used where appropriate, the then current or proposed EPA coal ash standards. Second, there are many similarities between the proposed EPA rule and CAMA. For example, both discuss groundwater monitoring at length, both provide for the same two types of coal ash pond closure methods, the definitions used in both are very similar and sometimes use identical wording, and both contain three levels of hazardous potential classifications associated with coal ash ponds.[11]

[11] It should be noted that the risk levels identified in the EPA proposed rule were based on dam or dike structural integrity and the potential for loss of life or the level of economic harm. The levels of risk in CAMA considered structural integrity as one of several factors to consider and the risk was not strictly related to loss of life.

Finally, the proposed CCR regulation also strongly encouraged the states to adopt at least the Federal minimum criteria in their solid waste management plans.[12] Therefore, even without the Dan River accident in 2014 and the enactment of CAMA shortly thereafter, had CAMA not been enacted in 2014, I believe that the State of North Carolina Legislature and/or the State's Department of Environmental Quality may have taken steps to adopt coal ash regulations similar to CAMA shortly after the CCR Rule was finalized in 2015. Regardless, the Company must comply with both the Federal and State coal ash disposal standards.

Q. ARE THERE ANY SOUTH CAROLINA STATE SPECIFIC LAWS OR GUIDELINES THAT THE COMPANY MUST FOLLOW IN ITS DISPOSAL OF CCRS?

A. Yes. On September 23, 2014, and later on April 23, 2015, the Company entered settlement agreements with the South Carolina Department of Environmental Control ("DHEC") and several conservation-related parties, such as the Save Our Saluda, that provided for management, disposal, and site remediation related to coal ash disposal facilities at the W. S. Lee Steam Station. The Company is obligated under these settlements to manage these particular coal ash site remediation sites as per the EPA CCR rules and any additional specific stipulations called for in the settlements.

Additionally, the South Carolina legislature passed H.B. 4857 in 2016, which requires utilities to dispose of coal combustion residuals resulting from

[12] Federal Register/Vol. 80, No. 74/Friday, April 17, 2015/Rules and Regulations, page 21430.

the production of electricity to be placed in Class 3 landfills, except under limited circumstances.

Q. WHAT ARE THE SPECIFIC COAL ASH DISPOSAL STANDARDS THAT DE CAROLINAS MUST NOW MEET WITH RESPECT TO ITS CURRENT COAL ASH DISPOSAL SITES?

A. Company Witness Kerin discusses these standards in detail. In short, the Company must comply with the 2015 Federal CCR Rule adopted by the EPA, which established national minimum criteria for active CCR landfills and basins and inactive basins containing water. It must also comply with any CAMA obligations (which are similar to the CCR Rule as discussed by Company Witness Kerin) and it must comply with the Lee settlements, as well as, any other state agency requirements, such as those that may be required by DHEC.

IV. THE COMPANY'S PROPOSED COAL ASH COST RECOVERY PROPOSAL IS REASONABLE

Q. WHAT ARE THE COSTS THE COMPANY IS SEEKING TO RECOVER THAT YOUR TESTIMONY ADDRESSES?

A. DE Carolinas reasonably and prudently incurred and expects to incur a total of $958 million (on a system basis) related to incremental ash pond closure compliance costs from January 2015 through December 2018.

Q. THE COMPANY IS ALSO ASKING THE COMMISSION TO ALLOW THE COMPANY TO DEFER COAL ASH RELATED EXPENSES PENDING RECOVERY ADJUDICATION IN A FUTURE RATE CASE. IS THIS A COMMON PRACTICE UNDER SOUTH CAROLINA REGULATORY PROCEDURES?

A. Yes. A deferred account mechanism is not unusual in ratemaking. In his book discussing utility regulation, Leonard Goodman indicates that "[t]he use of deferred cost accounting in the ratemaking context is so common and so fundamental a regulatory tool that no agency is likely to consider it necessary to study whether as a matter of policy costs should be deferred…"[13] In Docket No. 2015-96-E (Order No. 2015-308) this Commission allowed the Company to defer costs associated with coal ash related environmental remediation costs. DE Carolinas also has a currently effective deferral approved in the Commission's Order in Docket No. 2016-196-E, dated July 13, 2016. DE Progress has a similar deferral that is ongoing, which was approved in the Order in Docket No. 2016-227-E, dated December 21, 2016.

Q. IS IT REASONABLE TO EXPECT CUSTOMERS TO PAY FOR THE DISPOSAL OF COAL ASH?

A. Yes. Those dollars are required to be spent in compliance with new coal ash disposal requirements. Such a circumstance is not new in the history of environmental regulations in the United States, where it is commonplace for restrictions to be modified and become more restrictive over time. For

[13] Goodman, Leonard, "The Process of Ratemaking," Public Utility Reports, Vienna, VA, 1998, p. 322.

example, in our day-to-day life we have all directly experienced ever-tightening environmental restrictions on the automobiles we drive, as the emissions standards have grown increasingly stringent and more costly over the past few decades and the related costs have increased the costs of driving.

So, too, have electric utility generating plants been the focus of ever-tightening and more costly environmental standards. As an example, consider the evolution of coal gas smokestack emission standards, which are generally related to the federal Clean Air Act ("CAA") and its various updates or amendments.[14] The enactment of the CAA of 1970 resulted in a major shift in the federal government's role in air pollution control by authorizing the development of comprehensive federal and state regulations to limit emissions. The EPA was created on December 2, 1970, in large measure to implement the various requirements of the CAA.[15] Major revisions and stricter clean air standards were adopted as updates to the CAA in 1977 and 1990 and these new standards impacted coal-fired generating plants.[16]

Following the CAA 1990 amendments, the EPA devised a two-phased strategy to further reduce nitrogen oxide ("NOx") emissions from coal-fired power plants. Each phase imposed tighter NOx emissions standards on coal-fired generating plants and/or utilities. Additionally, in 1998, the EPA issued a rule that required 21 states (including South Carolina and North Carolina) to further reduce NOx emissions through the use of newer, cleaner control

[14] While sometimes the standards did not specifically target older coal-fired generating plants, invariably the more stringent standards would either impact a utility's total emissions limits, or a state's, consequently impacting even those older facilities that were not specifically targeted by newer emissions regulations.
[15] See: https://www.epa.gov/sites/production/files/2015-08/documents/peg.pdf.
[16] See: https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history.

strategies.[17]

Consequently, the history of environmental regulation is replete with examples of ever-tightening environmental regulations with the result being, with respect to utilities, the associated costs for meeting these ever-tightening environmental regulations usually becoming the responsibility of customers. Likewise, the issue of ever-tightening environmental regulations with respect to coal ash standards is the genesis of the Company's request as it relates to these new and additional coal ash disposal costs.

Q. ARE CERTAIN COAL ASH COSTS NOT RELATED TO COMPLIANCE WITH THE CCR RULE OR CAMA ALSO RECOVERABLE FROM CUSTOMERS?

A. Yes. As I mentioned earlier, the Company entered into a Consent Agreement with the South Carolina Department of Health and Environmental Control ("SCDHEC") covering the W.S. Lee Plant. Due to environmental concerns related to the Inactive Ash Basin and Ash Fill Area, DE Carolinas agreed to excavate ash from those areas. While excavation of these areas is not required by the CCR Rule, they are being excavated consistent with South Carolina environmental policy as articulated through the SCDHEC Consent Agreement. SCDHEC has since approved excavation plans for these areas. It is reasonable and prudent for DE Carolinas to take action to mitigate environmental risks from these areas even if it is not compelled to by environmental regulations.

[17] See: http://instituteforenergyresearch.org/studies/the-facts-about-air-quality-and-coal-fired-power-plants/.

Q. ARE THERE ANY COSTS RELATED TO CAMA THAT ARE IN EXCESS OF THE FEDERAL CCR RULE'S COSTS THAT ARE BEING REQUESTED IN THIS FILING?

A. This is discussed in Company Witness Kerin's testimony. As he discusses, there are some CAMA costs that are considered a system cost whose recovery is being requested, but there are other North Carolina resident-specific costs related to CAMA and not required by the CCR that the Company is not seeking to recover from South Carolina customers.

Q. DOES THE FACT THAT NEW STANDARDS WERE ADOPTED MEAN THAT DE CAROLINAS' PAST PRACTICES WERE UNREASONABLE?

A. No. It is well established that the standard for determining the prudence of a utility's actions should be whether management decisions were made in a reasonable manner and at an appropriate time on the basis of what was reasonably known or reasonably should have been known at that time. To that end, the standard "must be based on a contemporaneous view of the action or decision under question. Perfection is not required. Hindsight analysis – the judging of events based on subsequent developments — is not permitted."[18] In short, the Company's decisions related to coal ash disposal must be judged in accordance with the regulatory standards and industry practice as it existed at the time the decisions were made based on the fact that this was the information available to the Company at that time.

[18] Phillips, Charles F., The Regulation of Public Utilities, Public Utilities Reports, Arlington, VA.,1993, p. 340.

With respect to this prudence evaluation criteria, as discussed in the direct testimony of Company Witness Kerin, the Company historically has complied with all coal ash disposal regulations and used industry standard disposal operations for all its coal ash handling operations. Today, the coal ash disposal standards have simply changed and been updated as has occurred with many environmental standards over time. In the past, the Company was required to meet the coal ash disposal standards at the time, and so too it must now comply with the new coal ash disposal standards.

Q. IN YOUR OPINION ARE THE COAL ASH DISPOSAL COSTS THAT DE CAROLINAS IS SEEKING TO RECOVER IN THIS CASE "USED AND USEFUL" UTILITY COST?

A. Yes. DE Carolinas' coal ash disposal sites have always been used and useful as part of the coal-fired generation production process. As I discussed earlier, the Company's coal fired generating plants, whether located in South Carolina or North Carolina, have been used and useful and provided electric service that produced economic benefits to the customers in South Carolina for decades. In addition, as referenced in the direct testimony of Company Witness Kerin, the Company has historically spent dollars in order to comply with the coal ash disposal regulations in effect at the time, and these dollars were a necessary expenditure related to used and useful utility costs made in the provision of electric service at the time. The Company was, and continues to be, obligated to meet the needs of its customers. This obligation to serve requires the disposal of coal ash subject to the disposal standards at the time,

thereby rendering the disposal sites for this coal ash, for which costs DE Carolinas seeks recovery in this case, "used and useful" in providing electric service. In addition, it should be noted that these same costs were just found to be "used and useful" in three different proceedings in North Carolina, including the Company's proceeding last year where the North Carolina Commission specifically stated that these type of costs were "used and useful in the provision of service to the Company's customers (Order, Docket E-7, Sub 1146, page 23).

Q. HAS THE COMMISSION ALREADY ADDRESSED THE RECOVERY OF THESE SPECIFIC TYPE OF COAL ASH DISPOSAL COSTS WITH ANOTHER ELECTRIC UTILITY?

A. Yes. In Docket No. 2016-227-E, the Commission allowed DE Progress to recover coal ash expenses amortized over fifteen (15) years plus an approved return, albeit the Order did state that this finding had no precedential effect and will not prejudice the position of any Party in any future proceeding before the Commission.[19]

[19] Order in Docket No. 2016-227-E, Dec. 21, 2016, page 11, paragraph 15.

Q. ARE THERE EXAMPLES OF UTILITY INFRASTRUCTURE PROJECTS THAT DEALT WITH AN ENVIRONMENTAL ISSUE AND COST RECOVERY THAT IS SIMILAR IN NATURE TO THE COAL ASH ISSUE IN THIS FILING?

A. I believe a similar situation that is instructive are the ongoing costs related to gas pipeline safety and integrity. Like coal ash regulations, these pipeline safety and integrity regulations have changed and become more costly over the past few years. For example, in 2011 the DOT and Pipeline and Hazardous Materials Safety Administration ("PHMSA") promulgated regulations that require inspection, repair, rehabilitation and/or replacement of the highest risk natural gas pipeline infrastructure by pipeline operators. The program included an inventory of pipelines by type, system evaluation to identify risks, and an implementation plan to mitigate those risks. South Carolina natural gas systems have had expenditures to comply with these new regulations and South Carolina Electric & Gas Company has been allowed to collect these costs through a deferral mechanism, including a return, and collect these costs over time (Docket. No. 2014-461-G, see filings dated Dec. 3, 2014, ORS filing dated Dec. 10, 2014, and Commission Directive dated Dec. 17, 2014).

Q. ARE THERE OTHER EXAMPLES OF ENVIRONMENTAL COST RECOVERY SIMILAR TO THE COST RECOVERY OF COAL ASH DISPOSAL?

A. Yes. As I mentioned earlier in this testimony, in this Commission's Docket

No. 2011-271-E, costs associated with a Cliffside scrubber were amortized and in the rate base. In addition, in Docket No. 2009-226-E costs associated with scrubbers at the Allen Steam Station were amortized and in rate base.

Q. ARE THERE POTENTIAL COST SHARING LIABILITIES RELATED TO THESE COAL ASH DISPOSAL COSTS THAT MIGHT MATERIALIZE AND THUS DIMINISH THE OVERALL COST IMPACTS ON CUSTOMERS?

A. Yes. The Company has filed insurance litigation. When and if those monies materialize, customers should see the benefit of those proceeds, like spent fuel litigation. However, these cases can take many years to finally resolve. It would be appropriate for the Commission to monitor these cases and ensure that any outcome benefits customers. It is my understanding that the Company has no objection to that approach.

Q. ARE THERE WAYS THAT THE COMPANY MIGHT SUGGEST THAT THE COMMISSION COULD ADOPT AS A MEANS OF MITIGATING THE OVERALL RATE IMPACT FROM THESE NEW ADDITIONAL COSTS?

A. Yes. For example, it is not unusual for such costs to be stretched out over a number of years so that the impact on rates is more manageable. If that type of option is adopted, however, then it is appropriate for the utility to receive carrying costs to ensure it is made whole for all costs.

Q. BECAUSE ONLY PRUDENTLY INCURRED COSTS ARE RECOVERABLE, HAVE YOU EXAMINED WHETHER THE ACTUAL DOLLARS BEING REQUSTED BY THE COMPANY ARE REASONABLE AND PRUDENT?

A. I have examined the filing, many of the Federal and State laws related to coal ash disposal, the testimony of Company Witness Kerin and other Company witnesses, reviewed past Commission Orders regarding environmental cost recovery, discussed with the Company its history related to coal ash disposal, and reviewed the more recent settlement agreements related to coal ash disposal. Based on my review, I believe that the Company is in the best position to address the specific accounting methods and costs related to coal ash disposal and the related costs in conformance with State and Federal coal ash disposal requirements and I believe its actions in this regard are prudent.

Q. DO YOU BELIEVE THE COMPANY'S COAL ASH COST RECOVERY PROPOSAL IS REASONABLE?

A. Yes. I believe that the Company's proposals to recover its costs for complying with updated coal ash disposal regulations are reasonable and consistent with the historical regulatory treatment of similar costs.

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY AT THIS TIME?

A. Yes.

Dr. Julius A. "Chip" Wright
J. A. Wright & Associates, LLC

Julius A. "Chip" Wright is the President of J. A. Wright and Associates, LLC
18 Edgewater Drive
Cartersville, GA 30121
770-365-1872
jawright@mindspring.com.

Experience Overview

Prior to starting his firm, Dr. Wright was a Client Partner for AT&T Solutions Utilities and Energy Practice and before that a Principal in EDS' Management Consulting Services. Dr. Wright has been consulting electric gas, and telephone utilities on regulation, economics, rates, production modeling and strategic planning for the past three years. Prior to this Dr. Wright served an eight-year term as a Utility Commissioner for the state of North Carolina. Prior to that he served three terms in the North Carolina State Senate while he was a senior project engineer for Corning Glass Works on their optical wave guide project in Wilmington, North Carolina. He has a total of 14 years' government-related experience, 12 years' plant-related engineering experience, and he has established two companies.

Dr. Wright (in 2011) has also been a Visiting Professor at the University of the Virgin Islands teaching sophomore courses in both Macro and Micro Economics.

While serving on the North Carolina Utility Commission, he served four years on the National Association of Regulatory Utility Commissioners (NARUC) Electricity Committee. He has served in various other advisory capacities, including the Keystone

Committee on Externalities; the North Carolina Radiation Protection Committee, and on an Oversight Committee for a joint North Carolina/New York/ Department of Energy (DOE) project.

Dr. Wright has also served on the Southern States Energy Board Task Force on Restructuring the Electric Utility Industry.

Regulatory Policy Issues, Prudence Reviews and Regulatory Studies

- Presented testimony and rebuttal testimony to the North Carolina Utility Commission in support of Duke Energy Carolinas' efforts to recovery coal ash remediation costs the Company incurred in response to new coal ash disposal costs, Feb., 2017, Docket No. E-7, Sub 1146.

- Presented testimony and rebuttal testimony to the North Carolina Utility Commission in support of Duke Energy Progress' efforts to recovery coal ash remediation costs the Company incurred in response to new coal ash disposal costs, June and November, 2017, Docket No. E-2, Sub 1146.

- Prudence review: report for Georgia Power Company regarding the prudence of Plant Vogtle new nuclear construction costs, "*The South Carolina Public Service Commission's Prudence Reviews of Summer Units 2 and 3 as Persuasive*

Precedent for the Georgia Public Service Commission's Regulatory Treatment of Vogtle Units 3 and 4," April 5, 2016, Georgia Public Service Commission, Docket No 29849.

- Regulatory study: "*The Economic and Rate Implications from an Electric Utility's Loss of Large Load Customers,"* presented in rebuttal testimony for Progress Energy Carolinas, North Carolina Utility Commission Docket No. E-2, Sub 1023, March 4, 2013.

- Regulatory study: Dr. Wright routinely provides testimony support and witness training to several Fortune 500 investor-owned utilities in the Southeast, most recently involving two rate cases (2011, 2012) and three rate related cases dealing with an ongoing nuclear construction project (2008, 2010, 2012).

- Prudence review: related to a review of affiliate cost structure relative to compliance with FERC Order 707, conducted for a major SE utility, 4th quarter, 2008.

- Prudence review: related to a review of Affiliate Cost for Service Company Charges to a Regulated Utility, study conducted for SCANA Corporation, May, 2008.

- Regulatory study: review of Electric Utility Formula Rate Plans and specific Entergy formula rate plans, conducted for Entergy Mississippi, Jan-May, 2008.

- Prudence review: June 2005, provided a financial analysis related to the options for collecting and saving nuclear plant decommissioning costs for Duke Energy and this study along with a presentation was provided to the North Carolina Public Utility Commission and Staff.

- Regulatory study: provided analysis for Entergy Mississippi that was presented to the Mississippi Public Service Commission related to the valuation of services that Company provided to an unregulated affiliate, November 2002.

- Prudence review: "*Energy Deregulation*," March 2001, report of the California State Auditor on the causes of the problems related to high electric prices and blackouts (from May, 2000 through June 2001, and ongoing) in California's restructured electric marketplace. Dr. Wright was one of three consultants who essentially researched and prepared the State Auditor's report.

- Prudence review: Principal author with Dr. Al Danielsen of "*Reliability of Electric Supply In Georgia*," published by The Bonbright Utilities Center,

University of Georgia, June, 2001.

- Regulatory study: Presented testimony before the North Carolina Public Utilities Commission on behalf of SCANA Corporation regarding issues related to market power in its merger with Public Service Company of North Carolina, Docket No. G-5, Sub 400; G-3, Sub 0.

- Prudence review: was the principal author of a report and investigation titled "*An Analysis of Commonwealth Edison's Planning Process For Achieving Reliability of Supply*," which was an investigation of the Company's planning process to meet its statutory obligation for supplying electricity as Illinois transitions to a competitive retail electric market, Illinois Commerce Commission Docket No. 98-0514.

- Regulatory study: co-authored a national study that used computer modeling techniques to quantify the impact of electric competition on the aggregate economy in each of the 48 continental United States.

- Regulatory study: presented testimony to Louisiana Legislative Committee on behalf of Entergy Corporation regarding the various regulatory and technical issues that need to be addressed in the transition to competition.

- Regulatory study: presented testimony For Virginia Power with regard to its transition to competition plan.

- Regulatory study: testified before the Mississippi Public Service Commission on issues related to the establishment of retail electric competition, including ISO establishment, regional power exchanges, legislation, taxes and regulatory polices.

- Regulatory study: presented testimony for Entergy Corp. in both Louisiana and Arkansas in support of its transition to competition filing.

- Regulatory study: worked with three major southeastern utilities on developing business and regulatory strategy as they prepare for competition.

- Regulatory study: filed a report with the South Carolina Legislature that studied the impact of electric competition on the state of South Carolina.

- Was a panelist on a Southern Gas Association national televised forum on performance based regulation for the natural gas industry.

- Regulatory study: Was the lead policy witness for South Carolina Electric and Gas on obtaining regulatory approval to transfer of depreciation reserve from a nuclear plant to T&D

depreciation reserve. This is a critical issue in preparing for competition and limiting stranded investment.

- Developed regulatory and marketing strategy for Entergy with regard to its telecommunications initiatives. In these efforts he worked with the EDS Telecommunications Consulting Group.

- Prudence review: was the lead analysis of the prudence of Central Vermont Public Service Company's power and resource acquisitions over a five year period. The prudence of this utility's power supply strategy was under investigation in a rate case proceeding. Dr. Wright's team filed testimony supporting the Company and their efforts were instrumental in undermining the charges of imprudence brought by the Company's opposition.

- Regulatory study: developed an EDS intra-company task force to address the issues related to FERC's Transmission NOPR. This task force subsequently filed three responses to FERC's Open Access NOPR which provide a basis for EDS to maintain a leadership position as the electric utility industry undergoes restructuring to a competitive market.

- Regulatory study: helped develop a regulatory strategy and presented testimony on behalf of South Carolina Pipeline. In this case, an economic analysis prepared by Dr. Wright and Dr. Frank Cronin (from EDS Economic Planning and Analysis Consulting Group) was presented along with recommendations. The analysis and recommendations were generally accepted by the Commission staff.

- Prudence reviews: as a North Carolina Utility Commissioner Dr. Wright was involved in the prudence reviews of the costs related to the construction of three nuclear plants, Catawba 1 & 2 and Shearon Harris. In addition, he was involved in several other prudence reviews of various utilities.

Resource Planning & Economic Analysis

As a Commissioner he has been involved in a variety of resource planning issues including chairing the last North Carolina Resource Planning hearing that involved Duke Power Company, Carolina Power and Light, Virginia Power Company and the North Carolina Electric Membership Corporation.

He was also selected by the states of North Carolina and New York and the Department of Energy to be one of five representatives on a peer review panel overseeing a Resource Planning project being conducted by the Oak Ridge National Laboratories. In addition to these initiatives Dr. Wright has:

- *"The Economic and Rate Implications from an Electric Utility's Loss of Large Load Customers,"* presented in rebuttal testimony for Progress Energy Carolinas, North Carolina Utility Commission Docket No. E-2, Sub 1023, March 4, 2013.

- Provided an analysis of electric vehicle economics and the legislative, engineering, and regulatory issues that regulated electric utilities should address in both residential and commercial installments of electric vehicle charging stations. Studied performed for Fortune 500 Southeastern investor-owned utilities, 2011-2012.

- Provided a study to a Fortune 500 large Southeastern investor-owned utility related to the use of regulated electric rates designed to help retain current large industrial customers, 2012.

- Provided a Fortune 500 large Southeastern based investor-owned electric utility an economic, engineering, and environmental evaluation of a proposed renewable fuel alternative including the provision of an assessment and the design for a large-scale pilot test in one of that utility's fossil-fired facilities, 2012.

- Provided testimony for Entergy Mississippi related to whether the Mississippi Public Service Commission should adopt some proposed Federal standards related to integrated resource planning and energy efficiency, Docket No. 2008-AD-477, February 2009.

- Provided a report to Entergy Mississippi on fuel cost recovery mechanisms that included a nationwide survey of fuel adjustment mechanisms, 2008.

- Provided testimony in North Carolina for Duke Energy related to whether the North Carolina Public Utility Commission should approve the recovery of nuclear generation project development costs, Docket No. E-7-Sub 819, April 2008.

- Provided a review for Duke Energy of the cost assumptions and regulatory initiatives related to new nuclear plant construction nationwide, April 2008.

- Provided analysis for Entergy Mississippi related to new nuclear plant applications and any new regulatory mechanisms adopted by various states related to the approval or cost recovery associated with these new nuclear plants, April 2008.

- Presented testimony on behalf of Entergy Mississippi on its IRP or electric resource plan and demand side initiatives, June, 2008, Docket No. 2008-AD-158.

- Provided testimony in Georgia for Georgia Power Company supporting that Company's Integrated Resource Planning

process, the appropriate methods for evaluating demand side energy options, and supporting that Company's planned demand side programs, Docket No. 24505-U, June 2007.

- Provided testimony in North Carolina for Duke Energy and Progress Energy related to the regulatory and economic rationale and appropriateness for using the "peaker" methodology and other methodologies for the establishment of avoided cost rates, Docket No. E-100-Sub 106, June 2007.

- Provided analysis for Entergy Mississippi that was presented to the Mississippi Public Service Commission related to the valuation of services that Company provided to an unregulated affiliate, November 2002.

- Was the lead policy witness for South Carolina Electric and Gas on obtaining regulatory approval to transfer depreciation reserve from a nuclear plant to T&D depreciation reserve. This is a critical issue in preparing for competition and limiting stranded investment.

- Was instrumental in acquiring a large engagement for a major southeastern utility examining their competitive position as it relates to a competitive electric market. During the engagement he provided input and guidance on regulatory issues related to the deregulation of the electric industry.

- Assisted Carolina Power and Light Company in their integrated resource planning process by advising and facilitating a Commission directed public policy panel.

- Developed an overview of Niagara Mohawk Gas' integrated resource planning efforts. This engagement was under a contract from Oak Ridge National Laboratories.

Renewable Fuels, Demand Side, Energy Efficiency

- Provided an analysis of electric vehicle economics and the legislative, engineering, and regulatory issues that regulated electric utilities should address in both residential and commercial installments of electric vehicle charging stations. Studied performed for Fortune 500 Southeastern investor-owned utilities, 2011-2012.

- Provided a Fortune 500 large Southeastern based investor-owned electric utility an economic, engineering, and environmental evaluation of a proposed renewable fuel alternative including the provision of an assessment and the design for a large-scale pilot test in one of that utility's fossil-fired facilities, 2012.

- Provided testimony for Entergy Mississippi related to that Company's proposed new demand side initiatives Docket No. EC-123-0082-00, February 2009.

- Provided testimony for Entergy Mississippi related to whether the Mississippi Public Service Commission should adopt some proposed Federal standards related to integrated resource planning and energy efficiency, Docket No. 2008-AD-477, February 2009.

- Presented testimony on behalf of Public Service of North Carolina supporting that Company's proposed demand side initiatives as well as the cost recovery of those initiatives, Docket No. G-5, Sub 495, March 2008.

- Provided testimony in South Carolina for Duke Energy, South Carolina Electric and Gas, and Progress Energy related to whether the South Carolina Public Service Commission should adopt some proposed Federal standards related to smart metering and energy efficiency rate setting procedures, Docket No. 2005-386-E, April, 2007.

- Provided testimony in South Carolina for South Carolina Electric and Gas related to Integrated Resource Planning and that Company's demand side initiatives, June 2007.

- Provided testimony in Georgia for Georgia Power Company supporting that Company's Integrated Resource Planning process, the appropriate methods for evaluating demand side energy options, and supporting that Company's planned demand side programs, Docket No. 24505-U, June 2007.

- Provided testimony in North Carolina for Duke Energy and Progress Energy related to whether the North Carolina Public Utility Commission should adopt some proposed Federal standards related to smart metering, energy efficiency, and electric resource planning, Docket No. E-100-Sub 108, November 2006.

Nuclear Issues

- Prudence review: report for Georgia Power Company regarding the prudence of Plant Vogtle new nuclear construction costs, "*The South Carolina Public Service Commission's Prudence Reviews of Summer Units 2 and 3 as Persuasive Precedent for the Georgia Public Service Commission's Regulatory Treatment of Vogtle Units 3 and 4,"* April 5, 2016, Georgia Public Service Commission, Docket No 29849.

- Dr. Wright provided testimony support and witness training involving three rate related cases dealing with an ongoing nuclear

construction project (2008, 2010, 2012).

- Provided testimony in North Carolina for Duke Energy related to whether the North Carolina Public Utility Commission should approve the recovery of nuclear generation project development costs, Docket No. E-7-Sub 819, April 2008.

- August 2008 provided a study to Duke Energy Carolinas examining the issue of cost justification for new nuclear power facilities.

- June, 2005, provided a financial analysis related to the options for collecting and saving nuclear plant decommissioning costs for Duke Energy and this study along with a presentation was provided to the North Carolina Public Utility Commission and Staff.

Cost of Service, Rate Design, Forecasting

While serving more than eight years on the North Carolina Commission, Dr. Wright was involved in several cost of service and rate design analyses, testimonies, and orders. This included work in electric, telephone, gas, and water utilities. Additionally, he has presented testimony on performance based ratemaking and he has been involved in analyzing electric utility forecasting models, including end-use models, regression analysis (both linear and nonlinear) and customer discrete choice modeling forecasts. Furthermore, Dr. Wright's Ph.D. is in environmental and regulatory economics with special research into nonlinear minimal cost optimization procedures for electric utility production models. This work included optimizing investments, optimal regulatory regimes, pricing, cost recovery, and rate of return issues.

In addition, he has:

- "*The Economic and Rate Implications from AN Electric Utility's Loss of Large Load Customers,"* presented in rebuttal testimony for Progress Energy Carolinas, North Carolina Utility Commission Docket No. E-2, Sub 1023, March 4, 2013.

- Provided a study to a Fortune 500 large Southeastern investor-owned utility related to the use of regulated electric rates designed to help retain current large industrial customers, 2012.

- Presented testimony on behalf of Public Service of North Carolina related to the establishment of a formulary type rate setting mechanism for this natural gas LDC, August 2008, Docket No. G-5, Sub 495.

- Provided testimony in Georgia for Georgia Power Company supporting that Company's methodology for pricing fuel and its use of marginal replacement fuel cost procedures in its intra-company resource sharing arrangement with the Southern company, Docket No. 191142-U, April 2005.

- Provided an economic analysis of the proper regulatory regime for South Carolina Pipeline Company. In this analysis he presented testimony supporting performance based ratemaking and his recommendations were generally accepted by the Commission staff.

- Developed forecasted rates for two New York state utilities. These rates were developed to support a bond filing by a co-generator.

- Provided a forecast of power payments from New York State Electric and Gas (NYSEG) to two independent power producers (IPPs). This forecast was used to estimate the level of overpayments by NYSEG to these IPPs, under PURPA regulations, which he used in a filing before FERC supporting the company's claim of unlawful overpayments.

Telecommunications

As a Commissioner he has regulated all types of telecommunications providers for eight years. In addition, he has worked with two electric utilities in strategy formulation in regard to their entering the telecommunications business. Furthermore, he has eight years experience as a fiber optic engineer.

Other Areas of Expertise

Prior to joining EDS, he worked for eight years as a senior process engineer for Corning Glass in the design and production of optical waveguides (or fiber optics). Prior to that he worked for four years in the chemical industry as a process chemist and later as a senior project engineer. He has done work in environmental monitoring, process and product improvement, plant utilization, as well as starting and selling two successful companies – one in the financial leasing business and the other in the entertainment industry.

Presentations and Publications

Report for Georgia Power Company regarding the prudence of Plant Vogtle new nuclear construction costs, "*The South Carolina Public Service Commission's Prudence Reviews of Summer Units 2 and 3 as Persuasive Precedent for the Georgia Public Service Commission's Regulatory Treatment of Vogtle Units 3 and 4,"* April 5, 2016, Georgia Public Service Commission, Docket No 29849.

"*The Economic and Rate Implications from AN Electric Utility's Loss of Large Load Customers,"* presented in rebuttal testimony for Progress Energy Carolinas, North Carolina Utility Commission Docket No. E-2, Sub 1023, March 4, 2013.

"*Energy Deregulation,*" March 2001, report of the California State Auditor on the causes of the problems related to high electric prices and blackouts (from May, 2000 through June 2001, and ongoing) in California's restructured electric marketplace. Dr. Wright was one of three consultants who essentially researched and prepared the State Auditor's report.

"Low Cost States and Electric Restructuring -
The Issue is the Price!" presented to the 1999 Miller Forum on Government, Business and the Economy, University of Southern California, April 19, 1999.

An Analysis of Commonwealth Edison's Planning Process For Achieving Reliability of Supply, Illinois Commerce Commission Docket No. 98-0514.

The Impact of Competition on the Price of Electricity, author, published by L. A. Wright and Associates, November, 1998.

"Retail Competition in the Electric Industry: The Impact on Prices," presented at the 18th Annual Bonbright Center Energy Conference, Atlanta, Georgia, Sept. 10, 1998.

Potential Economic Impacts of Restructuring the Electric Utility Industry, co-author, published by the Small Business Survival Committee, Washington, DC, November, 1997.

"How Deregulation Will Affect Power Quality and Energy Management," presented at the Power Quality and Energy Management Conference co-sponsored by Entergy and EPRI, New Orleans, LA, Nov. 14, 1997.

"Deregulation of the Electric Industry," *Proceedings: National Business Energy Forum*, June 26, 1997, New Orleans, LA.

"A Different View of the Market," presented at the Southeastern Electric Exchange Conference, June 25, 1997, Charlotte, N.C.

"Restructuring The Electric Utility Industry: Theory vs. Reality," presented at the American Bar Association Restructuring Conference, Raleigh, NC, Dec. 5, 1996.

"Restructuring: The Best Approach for Virginia," presented at the Virginia State Corporation Commission Electricity Restructuring Forum, Charlottesville, VA, Nov. 15, 1996.

"Alternative Rate Making for the Natural Gas Industry: State Issues," presented at the Tenth Annual NARUC Biennial Regulatory Information Conference, Columbus, Ohio, Sept. 12, 1996.

"RetailCo: To Regulate or Not?" presented at the 9th Annual Automatic Meter Reading Symposium, New Orleans, La., Sept. 10, 1996.

"Convergence: The Competitive Revolution Comes To Electric Power," presented to the Southeastern Association of Regulatory Commissioners Annual Convention, Point clear, Alabama, June 4,1996.

"Stranded Assets Recovery Issues," presented at the Western Electric Power Institute: Financial Forum, Tucson, Arizona, March 8, 1996.

"The Deregulation of the Electric Utility Industry : Current Status," presented at the North Carolina Economic Developers Association Midwinter Conference, Pinehurst, N.C., February 23, 1996.

"Performance Based Regulation for The Natural Gas Industry," panelist on Southern Gas Association's Televised

Regulatory Forum, Dallas, Texas, Jan. 18, 1996.

"Industry Structure Should Meet Stakeholder Objectives," *Electric Light and Power*, Jan., 1996.

"Quantifying the Value of Stranded Investment: A Dynamic Modeling Approach," *Proceedings: Implementing Transmission Access and Power Transactions Conference*, Denver, Colorado, Dec. 14, 1995.

"Quantifying the Value of Stranded Investment: A Dynamic Modeling Approach," at the 15th Annual Bonbright Center Electric and Natural Gas Conference, October 9-11, 1995, Atlanta, Georgia.

Comments to FERC in the matter of Notice of Proposed Rulemaking on Open Access, Docket No. 95-9-000, 1995.

"The Road to Competition for Re-Regulated Industries," presented at the 1995 PROMOD users Forum, St. Petersburg, Florida, May 1, 1995.

"*Comparing New York State Electric and Gas Corporation's Non-Utility Generator Payments to Current Avoided Cost Rates*," report submitted in support of affidavit filed before FERC in Docket No. EL 95-28-000.

"A Solution To The Transmission Pricing and Stranded Investment Problems" *Public Utilities Fortnightly*, January 1995.

"Electric Utility Competition: The Winning Focus," presented at 1994 Southeastern Electric and Natural Gas Conference, Atlanta, Georgia, October 1994.

"*Gas Integrated Resource Planning: The Niagara Mohawk Experience*," for Martin Marietta Energy Systems, Inc., under contract to the United States Department of Energy, ORNL/SUB/93-03369.

"Future Regulation In the Water Industry - Can We Solve the Problems Before They Happen?" *Water*, Vol. 29, No. 2, pp. 14-17, Summer 1988.

"The Regulatory Process - Historical and Today," presented at Carolina Power and Light Company's IRP Public Participation Committee Seminar, June 1994.

"The Regulatory Role In DSM: Who Pays?" presented at Carolina Power and Light Company's IRP Public Participation Committee Seminar, June 1994.

"The Regulatory Process In North Carolina," North Carolina Telephone Association, June 1991.

Testimony

- Presented testimony and rebuttal testimony to the North Carolina Utility Commission in support of Duke Energy Carolinas' efforts to recovery coal ash remediation costs the Company incurred in response to new coal ash disposal

costs, Feb., 2017, Docket No. E-7, Sub 1146.

- Presented testimony and rebuttal testimony to the North Carolina Utility Commission in support of Duke Energy Progress' efforts to recovery coal ash remediation costs the Company incurred in response to new coal ash disposal costs, June and November, 2017, Docket No. E-2, Sub 1146.

- Presented testimony before the Mississippi Public Service Commission on behalf of Entergy Mississippi, Inc., in support of that company's revisions to its Formula Ratemaking procedures, Docket No. 2014-UN-132, June 2014.

- Rebuttal testimony for Progress Energy Carolinas, related to the economic and rate implications from an electric utility's loss of large load customers, North Carolina Utility Commission Docket No. E-2, Sub 1023, March 4, 2013.

- Provided a study to a Fortune 500 large Southeastern investor-owned utility related to the use of regulated electric rates designed to help retain current large industrial customers, and developed proposed testimony in support of this issue, 2012.

- Provided an affidavit in support of Progress Energy Carolinas to the North Carolina Utility Commission in a proceeding considering the appropriate avoided cost rates that should be paid to an independent power producer, Sept., 2010, Docket No. E-2, Sub 966.

- Presented testimony on behalf of Entergy Mississippi in an investigation of the Commissions procedures concerning confidentiality, August, 2010, Docket No. 2010-AD-259.

- Presented testimony before the Mississippi Public Service Commission on behalf of Entergy Mississippi, Inc.., in support of the formula rate plan annual evaluation, Docket No. 2002-UN-526, March, 2009.

- Presented testimony before the Mississippi Public Service Commission on behalf of Entergy Mississippi, Inc., in support of an energy efficiency pilot program and cost recovery mechanism, Docket No. 2009-UN-064, February, 2009.

- Presented testimony before the Mississippi Public Service Commission on behalf of Entergy Mississippi, Inc., in a proceeding to review statewide energy generation needs, Docket 2008-AD-270, August 2008.

- Presented testimony on behalf of Public Service of North Carolina related to the establishment of a formulary type rate setting mechanism for this natural gas LDC, August, 2008, Docket No. G-5, Sub 495.

- Presented testimony on behalf of Entergy Mississippi in an investigation of that utility's fuel charges and its fuel cost recovery, July, 2008, Docket No. 2008-AD-270.

- Presented testimony on behalf of Entergy Mississippi on its IRP or electric resource plan and demand side initiatives, June, 2008, Docket No. 2008-Ad-158.

- Presented testimony for Duke Energy in North Carolina related to the approval to incur pre-construction costs for the proposed Lee Nuclear Station, Docket No. E-7, Sub 819, May, 2008.

- Presented testimony for Duke Energy in South Carolina related to the approval to incur pre-construction costs for the proposed Lee Nuclear Station, Docket No. 2007 -440-E, June, 2008.

- Presented rebuttal testimony for Duke Energy in North Carolina related to the recovery of costs incurred by Duke related to GridSouth and why these expenses should be fully recoverable at this time, Docket No. E-7, Sub 828, October, 2007.

- Provided testimony for Georgia Power in its 2007 Integrated Resource Plan reviewing the plan filed by the Company and discussing how its demand-side proposals were reasonable, compared the Company's demand-side proposals to those found in neighboring states, and discussed the application of the various tests used to evaluate demand-side programs (TRC, RIM, PTC), Docket number 24505-U, May, 2007.

- Presented two testimonies before the South Carolina Public Service Commission on behalf of South Carolina Electric and Gas, Duke Energy and Progress Energy Carolinas in the investigation of adoption of energy efficiency and generation standards related to the Energy Policy Act of 2005, Dockets No. 2005-385-E and No. 2005-386-E, April, 2007.

- Presented testimony before the North Carolina Public Utilities Commission on behalf of Duke Energy and Progress Energy Carolinas in the investigation of adoption of energy efficiency and generation standards related to the Energy Policy Act of 2005, Docket No. E-100, Sub 108 November 2006.

- Presented testimony before the North Carolina Public Utilities Commission on behalf of Duke Energy in the investigation of Duke Energy's 2006 Integrated Resource Plan, Docket No. E-100, Sub 103, June, 2006.

- Provided testimony for Georgia Power in its 2005 Fuel Adjustment Hearing on the issue of the appropriate pricing

methodology for the dispatch and sale of electricity in the Southern Company system, Docket number 19142-U, April, 2005.

- Presented testimony on behalf of South Carolina Electric and Gas Company before the South Carolina Public Utility Commission for South Carolina Pipeline Company related to the inclusion of a generating plant in rate base and to the recovery of RTO (Gridsouth) related costs, Docket No. 2004-178-E, October, 2004.

- Presented testimony on behalf of Entergy Mississippi before the Mississippi civil court dealing with maintaining the confidentiality of special use contracts, August, 2004.

- Presented rebuttal testimony before the South Carolina Public Utility Commission for South Carolina Pipeline Company related to the reasons for continuing a program that allows flexible, competitive based pricing for large, interruptible customers that have alternative fuels, Docket No. 2004-6-G, May 29, 2004.

- Presented testimony before the Georgia Public Service Commission on the appropriate range for a return on equity earnings band (a form of performance based regulation) to set in a Savannah Electric & Power Company rate case, Docket No. 14618-U, April, 2002.

- Presented testimony before the Georgia Public Service Commission on behalf of Scana Energy Marketing related to affiliate relationships and the appropriate affiliate rules between Atlanta Gas Light Company's regulated and unregulated affiliates. Docket No. 146060-U, August 24, 2001.

- Presented testimony before the Georgia Public Service Commission on the appropriate range for a return on equity earnings band (a form of performance based regulation) to set in a Georgia Power Company rate case, Docket No. 14000-U, November 19, 2001.

- Presented testimony before the North Carolina Public Utilities Commission on behalf of SCANA Corporation regarding issues related to market power the appropriate affiliate relationship protections necessary in its merger with Public Service Company of North Carolina, Docket No. G-5, Sub 400; G-3, Sub 0.

- Presented testimony before the South Carolina Public Service Commission on behalf of South Carolina Pipeline Corporation regarding issues related to its annual review of gas costs as reflected in its purchase gas adjustment charge, Docket No. 1999-007-G, September, 1999.

- Presented testimony before the Arkansas Public Service Commission on behalf of Entergy Arkansas, Inc. regarding regulatory policies related to the definition of public utilities as it impacts citing requirements of non-utility owned generating facilities, Dockets No. 98-337-U, March 9, 1999.

- Presented Rebuttal and Surrebuttal testimony before the Louisiana Public Service Commission on behalf of Entergy Louisiana, Inc. and Entergy Gulf States regarding regulatory policies related to stranded cost recovery and on the issue of whether investors have been compensated for the risk of not recovering stranded costs, Dockets Nos. U-22092SC and U-20925, September, 1998.

- Presented testimony to the South Carolina Public Utility Commission for South Carolina Pipeline Corp. related to acquisition adjustments and regulatory policies related to performance based regulation, Docket No. 90-588-G, June, 1998.

- Testified before the Mississippi Public Service Commission on issues related to the establishment of retail electric competition, including ISO establishment, regional power exchanges, legislation, taxes and regulatory polices, April 16, 17, 1997.

- Support of Transition Proposals filed by Virginia Power Corporation, March, 1997.

- Entergy Arkansas testimony in support of Transition to Competition Filing, 1997.

- Entergy Louisiana testimony in support of Transition to Competition Filing, 1997.

- Support of Performance Based Regulation for GTE South Inc., Docket No. P-19, Sub 277, before the North Carolina Utility Commission, filed Nov. 22, 1995.

- Stranded Cost Regulatory Policy and Recovery Testimony before the South Carolina Public Service Commission, the Commission approved the request Dr. Wright was advocating, Docket No. 95-1000-E, October 27,1995.

- Performance based rate making mechanism and rate levels, testimony on behalf of South Carolina Pipeline Corporation, Docket No. 90-588-G, filed August 3, 1995.

- Prudence Review of Power Resource Planning for Central Vermont Public Service Company, Docket No. 5724, September 7, 1994.

- Rebuttal testimony on behalf of Central Vermont Public Service Company, Docket 5724, September 7, 1994.

- Surrebuttal testimony on behalf of Central Vermont Public Service Company, Docket No. 5724, September 9, 1994.

Education

Dr. Wright received a Ph.D. in Economics from North Carolina State University, focusing on regulatory and environmental economics, and is a member of the honor society.

He received an MBA in finance from Georgia State University in 1978, graduating with honors.

He received a Master of Economics from North Carolina State University in 1991 and was a member of the honor society.

He received a B.S. in Chemistry from Valdosta State College in Valdosta, Georgia, graduating Magna Cum Laud.

In addition, he has completed the Michigan State University Regulatory Course, several other NARUC courses on regulation, been an instructor on regulatory issues at several NARUC courses, completed management courses at Corning Glass and financial seminars at Bank Boston and Merrill Lynch dealing with regulation.

Dr. Wright (in 2011) has also been a Visiting Professor at the University of the Virgin Islands teaching sophomore courses in both Macro and Micro Economics.

Exhibit 3.7: DEC ORS 29-1 Non-ARO Ash Projects
Duke Energy Carolinas
ORS Data Request 29-1 c and d
Descriptions of monthly expenditues on Fossil Ash Basin Initiative projects

Project ID CB	Project Short Descr CB	1	2	3	4	5
CAS000281	SW/PW Reroute					
CAS000282	Lined Retention Basin					
CASLEAP	CCP Allen Light Tower Purchase	14,100.06				
CBC000214	Alternate Start-up DFA System			8,103,838.57	40,354.39	99,657.67
CBC000360	Enhanced FGD Wastewater Treatment					
CBC000370	BC Dry Bottom Ash Conversion					63,991,878.91
CBC000444	CCP Lined Retention Basin					
CBKCC0019	Buck Water Softener Project				197,433.55	14,114.01
CBKCC0027	CCP Process Water Reroute					
CCBCGYP	CCP Gypsum Pad Replacement					
CCS051310	U5 Bottom Ash Conveying Sys.					
CCS051492	CS Unit 5 Dry Flyash Conversion	32,555.13	(67,828.42)	686,080.34	(710,693.04)	(4,771.58)
CCS060038	CCP CS #6 Air Heater Flyash System					
CCS560047	Active Waste Water Treatment System					
CCS560077	Lined Retention Basins					
CLS000085	Waste Water Treatment					
CMBC413	CCP BC-413 Erosion Saddle Dike 2&3	217,807.84				
CMS000285	SW / PW Reroute					
CMS000286	Lined Retention Basin					
CMS000602	CCP - DBA Haul Road				744,144.34	106.39
CMS001263	Cells 3 and 4 New Landfill					
CMSCM1227	MS Dry Bottom Ash System Conversion					
Grand Total		**264,463.03**	**(67,828.42)**	**8,789,918.91**	**271,239.24**	**64,100,985.40**

Exhibit 3.7: DEC ORS 29-1 Non-ARO Ash Project
Duke Energy Carolinas
ORS Data Request 29-1 c and d
Descriptions of monthly expenditues on Fossil Ash Basin Initi

Project ID CB	Project Short Descr CB	6	7	8	9	.
CAS000281	SW/PW Reroute					
CAS000282	Lined Retention Basin					37,705,846.34
CASLEAP	CCP Allen Light Tower Purchase		0.00			
CBC000214	Alternate Start-up DFA System	326,232.03	51,664.07	5,492.62	24,882.73	108,015.08
CBC000360	Enhanced FGD Wastewater Treatment					8,853,762.74
CBC000370	BC Dry Bottom Ash Conversion	795,467.39	1,440,600.71	532,132.87	290,026.55	587,379.63
CBC000444	CCP Lined Retention Basin					
CBKCC0019	Buck Water Softener Project	14,016.03	514.88	579.62	(5,067.85)	9,106.47
CBKCC0027	CCP Process Water Reroute					
CCBCGYP	CCP Gypsum Pad Replacement					
CCS051310	U5 Bottom Ash Conveying Sys.	11,617,735.49	625,999.73	644,229.88	(421,542.79)	173,056.73
CCS051492	CS Unit 5 Dry Flyash Conversion	677.23	693.58	81,869.56	769.63	685.50
CCS060038	CCP CS #6 Air Heater Flyash System					
CCS560047	Active Waste Water Treatment System					
CCS560077	Lined Retention Basins					
CLS000085	Waste Water Treatment			18,447,422.41	126,740.72	195,719.65
CMBC413	CCP BC-413 Erosion Saddle Dike 2&3		0.00			
CMS000285	SW / PW Reroute					
CMS000286	Lined Retention Basin					33,422,770.18
CMS000602	CCP - DBA Haul Road	103.29	105.78	108.12	117.47	104.53
CMS001263	Cells 3 and 4 New Landfill	17,705,218.04	35,406.01	24,932.10	24,166.93	90,364.65
CMSCM1227	MS Dry Bottom Ash System Conversion					77,363,529.11
Grand Total		**30,459,449.50**	**2,154,984.76**	**19,736,767.18**	**40,093.39**	**158,510,340.61**

EXHIBIT DJW - 3.7
Page 2 of 3

Exhibit 3.7: DEC ORS 29-1 Non-ARO Ash Project
Duke Energy Carolinas
ORS Data Request 29-1 c and d
Descriptions of monthly expenditues on Fossil Ash Basin Initi

Project ID CB	Project Short Descr CB	11	12	Grand Total
CAS000281	SW/PW Reroute		24,960,779.49	24,960,779.49
CAS000282	Lined Retention Basin	34,451.52	336,731.73	38,077,029.59
CASLEAP	CCP Allen Light Tower Purchase			14,100.06
CBC000214	Alternate Start-up DFA System	13,237.84	16,129.25	8,789,504.25
CBC000360	Enhanced FGD Wastewater Treatment	45,422.74	127,180.26	9,026,365.74
CBC000370	BC Dry Bottom Ash Conversion	137,886.56	589,044.39	68,364,417.01
CBC000444	CCP Lined Retention Basin		33,724,551.68	33,724,551.68
CBKCC0019	Buck Water Softener Project	(8,650.99)	14,870.00	236,915.72
CBKCC0027	CCP Process Water Reroute		1,393,501.72	1,393,501.72
CCBCGYP	CCP Gypsum Pad Replacement		228,250.45	228,250.45
CCS051310	U5 Bottom Ash Conveying Sys.	8,285.29	115,088.51	12,762,852.84
CCS051492	CS Unit 5 Dry Flyash Conversion	(2,839.99)	4,110.06	21,308.00
CCS060038	CCP CS #6 Air Heater Flyash System	1,420,240.95	62,611.24	1,482,852.19
CCS560047	Active Waste Water Treatment System		51,894,994.15	51,894,994.15
CCS560077	Lined Retention Basins		13,225,655.53	13,225,655.53
CLS000085	Waste Water Treatment	136,838.43	297,463.17	19,204,184.38
CMBC413	CCP BC-413 Erosion Saddle Dike 2&3			217,807.84
CMS000285	SW / PW Reroute		48,060,946.90	48,060,946.90
CMS000286	Lined Retention Basin	598,701.15	449,292.22	34,470,763.55
CMS000602	CCP - DBA Haul Road	(437.80)	631.49	744,983.61
CMS001263	Cells 3 and 4 New Landfill	26,142.00	3,487.03	17,909,716.76
CMSCM1227	MS Dry Bottom Ash System Conversion	412,175.00	438,982.09	78,214,686.20
Grand Total		**2,821,452.70**	**175,944,301.36**	**463,026,167.66**

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2013

S **D**

SENATE DRS25122-TAa-16 (05/07)

Short Title:	Governor's Coal Ash Action Plan.	(Public)
Sponsors:	Senators Apodaca and Berger (Primary Sponsors).	
Referred to:		

A BILL TO BE ENTITLED

AN ACT TO (1) CHANGE NOTIFICATION REQUIREMENTS APPLICABLE TO DISCHARGES OF WASTEWATER; (2) ESTABLISH COAL COMBUSTION PRODUCTS IMPOUNDMENT WATER MONITORING PROGRAM; (3) IDENTIFY AND ADDRESS UNPERMITTED WASTEWATER DISCHARGES AT COAL COMBUSTION PRODUCTS IMPOUNDMENT SITES; (4) AMEND S.L. 2009-390; (5) REQUIRE EMERGENCY ACTION PLANS FOR HIGH AND INTERMEDIATE HAZARD DAMS; (6) CHANGE NOTIFICATION REQUIREMENTS APPLICABLE TO DAM REPAIRS; (7) INCREASE COAL COMBUSTION PRODUCTS IMPOUNDMENT INSPECTION REQUIREMENTS; (8) MODIFY THE DEFINITION OF SOLID WASTE TO INCLUDE REMOVED COMBUSTION PRODUCTS; (9) PLACE A TEMPORARY MORATORIUM ON THE USE OF COAL COMBUSTION PRODUCTS AS STRUCTURAL FILL; AND (10) ESTABLISH REQUIREMENTS FOR COAL COMBUSTION PRODUCTS IMPOUNDMENT CLOSURE.

Whereas, the issue of coal ash storage has not been adequately addressed in North Carolina for more than six decades; and

Whereas, on February 2, 2014, an estimated 39,000 tons of coal ash was released into the Dan River following the failure of a stormwater pipe under a utility coal ash impoundment pond in Eden, North Carolina; and

Whereas, the Department of Environment and Natural Resources ("Department") finds that coal combustion products have settled into the sediment of the river bottom and will require an extensive clean-up plan to complete remediation; and

Whereas, the Department is in the process of reassessing previous efforts at achieving compliance at coal ash facilities and developing short term and long term policies in light of the Dan River spill, violations discovered in light of increased inspections of coal combustion products disposal facilities and anticipated new federal regulations on coal combustion products; and

Whereas, it is the intent of the Department to ensure that spills of wastewater are reported to the Department in a defined and adequate time frame; and

Whereas, it is the intent of the Department to protect surface water and groundwater resources for their best usage; and

Whereas, it is the intent of the Department to ensure that all unpermitted wastewater discharges are eliminated or addressed in an environmentally responsible manner; and

Whereas, it is the intent of the Department to equally subject all dams under jurisdiction of G.S. 143-215.23 to the requirements of statute and administrative code; and

Whereas, it is the intent of the Department for the owners of all dams under jurisdiction of G.S. 143-215.23 deemed intermediate and high hazard by the Department to prepare at their own cost documents that describe full and adequate response to emergency situations at their dams and to submit those documents to the Department; and

Whereas, it is the intent of the Department to ensure that emergency situations at dams are reported to the Department in a defined and adequate time frame; and

Whereas, the it is the intent of the Department to increase oversight of dam structure integrity to protect the health and safety of the public; and

Whereas, state law exempts coal combustion products removed from impoundments from being defined as a solid waste; and

Whereas, the Department finds that consistent environmental standards should apply to coal combustion products removed from impoundments for management or disposal and coal combustion products managed or disposed of as a solid waste; and

Whereas, the Department finds the federal Environmental Protection Agency is under consent decree to complete new regulations by December 2014 for coal combustion products that are proposed to bring consistency to requirements for large fills such as structural fills and landfills; and

Whereas, the Department finds that conversion and closure of coal ash storage ponds is necessary for protection of the health and safety of the public; Now, therefore,

The General Assembly of North Carolina enacts:

PART I. NOTIFICATION REQUIREMENTS APPLICABLE TO DISCHARGES OF WASTEWATER

SECTION 1. G.S. 143-215.1C reads as rewritten:

"**§ 143-215.1C. Report to wastewater system customers on system performance; <u>report discharge of untreated wastewater and wastewater containing coal combustion products to the Department; </u>publication of notice of discharge of untreated wastewater and waste.**

(a) Report to Wastewater System Customers. – The owner or operator of any wastewater collection or treatment works, the operation of which is primarily to collect or treat municipal or domestic wastewater and for which a permit is issued under this Part and having an average annual flow greater than 200,000 gallons per day, shall provide to the users or customers of the collection system or treatment works and to the Department an annual report that summarizes the performance of the collection system or treatment works and the extent to which the collection system or treatment works has violated the permit or federal or State laws, regulations, or rules related to the protection of water quality. The report shall be prepared on either a calendar or fiscal year basis and shall be provided no later than 60 days after the end of the calendar or fiscal year.

<u>(a1) Report of Discharge of Untreated Wastewater or Wastewater Containing Coal Combustion Products to the Department. – The owner or operator of any wastewater collection or treatment works shall report a discharge of 1,000 gallons or more of untreated wastewater or wastewater containing coal combustion products, or a spill of any amount of untreated wastewater or wastewater containing coal combustion products that reaches waters of the State to the Department as soon as possible but not later than 24 hours after first knowledge of the spill. This reporting requirement shall be in addition to any other reporting requirement applicable to the owner or operator of the wastewater collection or treatment works.</u>

(b) Publication of Notice of Discharge of Untreated Wastewater. – The owner or operator of any wastewater collection or treatment works, the operation of which is primarily to

collect or treat municipal or domestic wastewater ~~and for which a permit is issued under this Part~~ shall:

(1) In the event of a discharge of 1,000 gallons or more of untreated wastewater or wastewater containing coal combustion products to the surface waters of the State, issue a press release to all print and electronic news media that provide general coverage in the county where the discharge occurred setting out the details of the discharge. The owner or operator shall issue the press release within ~~48~~ 24 hours after the owner or operator has ~~determined that the discharge has reached the surface waters of the State.~~ first knowledge of the spill. The owner or operator shall retain a copy of the press release and a list of the news media to which it was distributed for at least one year after the discharge and shall provide a copy of the press release and the list of the news media to which it was distributed to any person upon request.

(2) In the event of a discharge of 15,000 gallons or more of untreated wastewater to the surface waters of the State, publish a notice of the discharge in a newspaper having general circulation in the county in which the discharge occurs and the county immediately downstream and in each county downstream from the point of discharge that is significantly affected by the discharge. The Secretary shall determine, at the Secretary's sole discretion, which counties are significantly affected by the discharge and shall approve the form and content of the notice and the newspapers in which the notice is to be published. The notice shall be captioned "NOTICE OF DISCHARGE OF UNTREATED SEWAGE". The owner or operator shall publish the notice within 10 days after the Secretary has determined the counties that are significantly affected by the discharge and approved the form and content of the notice and the newspapers in which the notice is to be published. The owner or operator shall file a copy of the notice and proof of publication with the Department within 30 days after the notice is published. Publication of a notice of discharge under this subdivision is in addition to the requirement to issue a press release under subdivision (1) of this subsection.

(c) Publication of Notice of Discharge of Untreated Waste as defined in G.S. 143-213(18). – The owner or operator of any wastewater collection or treatment works, other than a wastewater collection or treatment works the operation of which is primarily to collect or treat municipal or domestic ~~wastewater, for which a permit is issued under this Part~~ wastewater shall:

(1) In the event of a discharge of 1,000 gallons or more of untreated waste to the surface waters of the State, issue a press release to all print and electronic news media that provide general coverage in the county where the discharge occurred setting out the details of the discharge. The owner or operator shall issue the press release within ~~48~~ 24 hours after the owner or operator has ~~determined that the discharge has reached the surface waters of the State.~~first knowledge of the spill. The owner or operator shall retain a copy of the press release and a list of the news media to which it was distributed for at least one year after the discharge and shall provide a copy of the press release and the list of the news media to which it was distributed to any person upon request.

(2) In the event of a discharge of 15,000 gallons or more of untreated waste to the surface waters of the State, publish a notice of the discharge in a newspaper having general circulation in the county in which the discharge occurs and the county immediately downstream and in each county

downstream from the point of discharge that is significantly affected by the discharge. The Secretary shall determine, at the Secretary's sole discretion, which counties are significantly affected by the discharge and shall approve the form and content of the notice and the newspapers in which the notice is to be published. The notice shall be captioned "NOTICE OF DISCHARGE OF UNTREATED WASTE". The owner or operator shall publish the notice within 10 days after the Secretary has determined the counties that are significantly affected by the discharge and approved the form and content of the notice and the newspapers in which the notice is to be published. The owner or operator shall file a copy of the notice and proof of publication with the Department within 30 days after the notice is published. Publication of a notice of discharge under this subdivision is in addition to the requirement to issue a press release under subdivision (1) of this subsection."

PART II. COAL COMBUSTION PRODUCTS IMPOUNDMENT WATER MONITORING PROGRAM

SECTION 2. Article 21 of Chapter 143 of the General Statutes is amended by adding a new section to read:

"**§ 143-215.1D. Coal combustion products impoundment water monitoring program.**

(a) Groundwater Assessment – Owners of coal ash impoundments located at all investor-owned public utilities shall conduct groundwater monitoring according to the following schedule and procedures:

(1) No later than 45 days from enactment of this Act, the owner shall submit to the Division of Water Resources a Plan of proposed assessment activities to evaluate groundwater impacts from all coal combustions products impoundments located at all investor owned public utilities. At a minimum the plan shall:

a. Identify all receptors and significant exposure pathways.

b. Assess horizontal and vertical extent of soil and groundwater contamination for all contaminants confirmed to be present in groundwater in exceedance of groundwater quality standards and all significant factors affecting contaminant transport.

c. Identify the geological and hydrogeological features influencing the movement, chemical, and physical character of the contaminants.

d. Propose a schedule for continued groundwater monitoring.

Upon review and approval by the Division of Water Resources, the investor-owned public utility shall initiate assessment activities.

(2) No later than 180 days from the Division of Water Resources' written approval of the Plan required under subdivision (1) of subsection (a) of this section, or a time frame otherwise approved by the Division of Water Resources, the owner shall submit a Report detailing the findings of the Plan. The Report shall set forth the extent of any and all exceedances of the groundwater quality standards.

(3) No later than 270 days from the Division of Water Resources' written approval of the Plan required under subdivision (1) of subsection (a) of this section, or a time frame otherwise approved by the Division of Water Resources, the owner shall submit to the Division of Water Resources a proposed Corrective Action Plan. The Corrective Action Plan shall, at a minimum, contain:

a. A listing of all exceedances of the groundwater quality standards including any exceedances that the owner asserts are the result of natural background conditions.

b. Except as provided in subsubdivision f. of this subdivision, a description of the proposed corrective action employing the best available technology for the restoration of groundwater quality to the level of the groundwater quality standards and reasons for its selection.

c. Specific plans, including engineering details where applicable, for restoring groundwater quality.

d. A schedule for the implementation of the proposed corrective action plan.

e. A monitoring plan for evaluating the effectiveness of the proposed corrective action and the movement of the contaminant plume.

f. The owner may request alternative remediation as provided for under the requirements of 15A NCAC 2L .0106 (k), (l), or (m).

(4) No later than 30 days from the Division of Water Resources' approval of a Final Corrective Action Plan, the owner shall implement the Final Corrective Action Plan in accordance with a schedule established by Division of Water Resources. The approval of a Final Corrective Action Plan is not a final agency action pursuant to G.S. 150B.

(b) Drinking Water Assessment. – Within 60 days of enactment of this Act, owners of coal ash impoundments located at all investor-owned public utilities shall conduct and submit to the Division of Water Resources a water supply receptor survey. The Survey shall identify all receptors within a radius of 2,640 feet (0.5 mile) from the established compliance boundary of each impoundment. The owner shall sample each receptor identified by the Division of Water Resources. For any well exceeding the groundwater standards, the owner shall replace the water supply with a supply of potable drinking water.

(c) Annual Reporting Requirement. – In addition to any other reports required by the Division of Water Resources, the owners of coal combustion products impoundments located at all investor owned public utilities shall submit an annual report to the Division of Water Resources no later than January 31 of each year. The Annual report shall include a summary of all monitoring data collected over the year, status of Plans and Final Corrective Action Plans, and a summary of water supply receptor survey results."

PART III. IDENTIFY AND ADDRESS UNPERMITTED WASTEWATER DISCHARGES AT COAL COMBUSTION PRODUCTS IMPOUNDMENT SITES

SECTION 3. Article 21 of Chapter 143 of the General Statutes is amended by adding a new section to read:

"**§ 143-215.1E. Identify and address unpermitted wastewater discharges at coal combustion products impoundment sites.**

(a) Owners of coal combustion products impoundments located at all investor-owned public utilities shall implement the plan described in subsections (b) through (h) of this section to identify and address any unpermitted discharges to surface waters at those coal combustion products impoundment sites.

(b) No later than 90 days from enactment of this act, the owner shall submit a topographic map at a scale approved by Division of Water Resources that indicates the locations of all outfalls from engineered channels designed and/or improved for the purpose of collecting water from the toe of the coal combustion products impoundments. For each outfall, the map will:

(1) Specify its latitude and longitude.

(2) Specify whether the discharge is continuous or intermittent.
(3) Provide an average flow measurement, including a description of the method used to measure flow.

With the topographic map, the owner will submit to the Division of Water Resources a schedule according to which the owner shall conduct water quality sampling of the toe drain outfalls in order to further characterize the discharging water. No later than 30 days from receipt of the map and sampling schedule, Division of Water Resources will provide the owner with review comments, either approving the plan or noting any deficiencies to be corrected and a date by which a corrected map and/or sampling schedule is to be submitted for further review and comment. Within 30 days of approval of the schedule by the Division of Water Resources, the owner shall begin to sample the toe drain outfalls in accordance with the schedule and submit the samples for water quality analysis. Water quality analyses shall include the same parameters required for a coal-fired power plant per EPA Application Form 2C – Wastewater Discharge Information, Consolidated Permits Program (EPA Form 3510-2C, August 1990). If the owner demonstrates to the satisfaction of Division of Water Resources that sampling of a toe drain outfall is unlikely to generate usable data or is otherwise infeasible, the owner will not be required to sample that toe drain outfall.

(c) No later than 180 days from the enactment of this act, the owner shall submit a topographic map at a scale approved by the Division of Water Resources that indicates the locations of any seeps or drains reflecting discharges from the ash ponds but are not captured by an engineered channel identified pursuant to subsection (b) of this section. For any seep so identified that is believed to not reflect flows from any of the ash ponds, the owner shall provide to the Division of Water Resources the basis for such belief, including hydrological data or water quality testing information. For the seeps from the impoundments, the map will:

(1) Specify its latitude and longitude.
(2) Specify whether the discharge is continuous or intermittent.
(3) Provide an average flow measurement, including a description of the method used tomeasure flow.
(4) Specify whether the discharge from the seep reaches surface waters.
(5) If the discharge from the seep reaches surface water, identify the location where the seep reaches surface water on the map to include latitude and longitude.

(d) No later than 180 days from the enactment of this act, the owner shall submit a plan to determine whether toe drain or seep discharges from the impoundments have reached surface waters of the state and are causing violations of surface water quality standards. The plan shall include the following:

(1) Sampling locations upstream and downstream within all channels that potentially carry such discharges.
(2) Water quality analyses shall include the same parameters required for a coal-fired power plant per EPA Application Form 2C – Wastewater Discharge Information, Consolidated Permits Program (EPA Form 3510-2C, August 1990).
(3) Frequency and duration of the sampling activities.
(4) Reporting requirements.

No later than 30 days from receipt of the plan, the Division of Water Resources will provide the owner with review comments, either approving the plan, or noting any deficiencies to be corrected and a date by which a corrected plan is to be submitted for further review and comment or approval. Within 180 days from the Division of Water Resources' approval of the plan, the owner will implement and complete the plan and submit a report summarizing that work and its results.

(e) If the Division of Water Resources determines, based on information submitted pursuant to subsections (b) through (d) of this section, that discharges, whether from toe drains or seeps, are causing a violation of G.S. 143-215.1 or any other law, it shall so notify the owner. Within 120 days of such notification, the owner shall do one of the following:

(1) Stop the discharge.

(2) Capture and route the discharge so that it is discharged through an NPDES permitted outfall.

(3) Address the seep using Best Management Practices approved by the Division of Water Resources pursuant to subsection (f) of this section.

(4) Propose alternative Best Management Practices subject to the approval of the Division of Water Resources.

(5) Apply for an NPDES discharge permit or permit amendment to regulate the discharge.

(f) No later than 180 days from the date of enactment of this act, The owner shall submit to the Division of Water Resources for approval a set of best management practices designed to prevent unpermitted discharges of pollutants from the ash ponds to surface waters. Thereafter, the owner may submit additional best management practices for the Division of Water Resources approval.

(g) No later than 30 days from enactment of this act, the owner shall submit to the Division of Water Resources a plan for identifying new seeps on the dike areas of the ash ponds that arise after the submission of the maps described in subsections (b) and (c) of this section. The plan shall include, at a minimum, the following elements:

(1) A procedure for routine inspection of the coal combustion products impoundment areas to identify indicators of potential new seeps.

(2) A decision flow chart (including criteria and procedures) for determining whether a new seep is actually present.

(3) A procedure for notifying the Division of Water Resources after a new seep is confirmed.

No later than 30 days from receipt of the plan, the Division of Water Resources will provide the owner with review comments noting any deficiencies.

(h) No later than 12 months from the enactment of this act, the owner shall submit any information, forms, and fees necessary to request that the Division of Water Resources incorporate the process described in subsections (b) through (g) of this section into the owner's NPDES permit."

PART IV. AMEND S.L. 2009-390 (SB 1004)

SECTION 4. Section 3.(b) of S.L. 2009-390 is repealed.

PART V. EMERGENCY ACTION PLANS

SECTION 5. G.S. 143-215.31 is amended by adding two subsections to read:

"**§ 143-215.31. Supervision over maintenance and operation of dams.**

…

(f) Develop Emergency Action Plan. – Owners of high and intermediate hazard dams shall develop at their cost an Emergency Action Plan for their dam in document format in triplicate copy to be submitted to the Department by January 1, 2015. The emergency action plan at minimum shall:

(1) Identify potential emergency conditions that can occur at the dam.

(2) List preplanned actions to be taken during an emergency condition at the dam.

(3) Document emergency notification procedures to aid in warning and evacuations during an emergency condition at the dam.

(4) Provide a downstream inundation map depicting areas affected by a dam failure and sudden release of the impoundment.

If a dam owner fails to provide the Department with an Emergency Action Plan in triplicate copy by January 1, 2015, it shall be subject to Enforcement Procedures under G.S. 143-215.36. Dam owners shall update their emergency action plans annually and submit the updated plans in triplicate copy to the Department each year subsequent to January 1, 2015. The Department shall provide the appropriate local Emergency Management Agency and the Regional Office of the Department with the triplicate copy.

(g) Confidentiality of Sensitive Public Security Information – To the extent that any documents included in the Emergency Action Plan developed under this section contain sensitive public security information, those portions of documents shall not be subject to disclosure under the North Carolina Public Records Act."

PART VI. NOTIFICATION OF EMERGENCY REPAIR OF A DAM

SECTION 6. G.S. 143-215.27 reads as rewritten:

"**§143-215.27. Repair, alteration, or removal of dam.**

(a) Before commencing the repair, alteration or removal of a dam, application shall be made for written approval by the Department, except as otherwise provided by this Part. The application shall state the name and address of the applicant, shall adequately detail the changes it proposes to effect and shall be accompanied by maps, plans and specifications setting forth such details and dimensions as the Department requires. The Department may waive any such requirements. The application shall give such other information concerning the dam and reservoir required by the Department, such information concerning the safety of any change as it may require, and shall state the proposed time of commencement and completion of the work. When an application has been completed it may be referred by the Department for agency review and report, as provided by subsection (b) of G.S. 143-215.26 in the case of original construction.

(b) When repairs are necessary to safeguard life and property they may be started immediately but the Department shall be notified ~~forthwith~~ of the proposed repairs and of the work under ~~way,~~way as soon as possible but not later than 24 hours after first knowledge of the necessity for emergency repairs, and ~~they~~ such repairs shall be made to conform to its orders."

PART VII. INSPECTION OF IMPOUNDMENTS

SECTION 7. G.S. 143-215.32 is amended by adding two sections to read:

"(e) Investor-owned public utilities shall inspect each coal combustion products impoundment weekly and after storms to detect evidence of any of the following:

(1) Deterioration, malfunctions, or improper operation of spillway control systems.

(2) Sudden drops in the level of the impoundment's contents.

(3) Severe erosion or other signs of deterioration in dikes or other containment devices.

(4) New or enlarged seeps along the downstream slope or toe of the dike or other containment devices.

(5) Any other abnormal conditions at the impoundment that may pose a health or safety risk.

If any abnormalities in subdivisions (1) through (5) of this subsection are observed, documentation shall be provided to a registered professional engineer for further investigation and appropriate action.

(f) Each coal combustion products impoundment located at investor-owned public utilities shall be inspected annually by an independent registered professional engineer to assure structural integrity and that the design, operation, and maintenance of the surface

impoundment are in accordance with generally accepted engineering standards. The owner or operator must notify the Department by way of a certification by the independent registered professional engineer that the dam is structurally sound and the design, operation, and maintenance of the surface impoundment is in accordance with generally accepted engineering standards. The inspection report shall be submitted to the Department within 30 days of the completion of the inspection and shall be placed on a publicly accessible internet site."

PART VIII. DEFINITION OF SOLID WASTE

SECTION 8.(a) G.S. 130A-290(a)(35) reads as rewritten:

"(35) "Solid waste" means any hazardous or nonhazardous garbage, refuse or sludge from a waste treatment plant, water supply treatment plant or air pollution control facility, domestic sewage and sludges generated by the treatment thereof in sanitary sewage collection, treatment and disposal systems, and other material that is either discarded or is being accumulated, stored or treated prior to being discarded, or has served its original intended use and is generally discarded, including solid, liquid, semisolid or contained gaseous material resulting from industrial, institutional, commercial and agricultural operations, and from community activities. The term does not include:

a. Fecal waste from fowls and animals other than humans.

b. Solid or dissolved material in:

1. Domestic sewage and sludges generated by treatment thereof in sanitary sewage collection, treatment and disposal systems which are designed to discharge effluents to the surface waters.

2. Irrigation return flows.

3. Wastewater discharges and the sludges incidental to and generated by treatment which are point sources subject to permits granted under Section 402 of the Water Pollution Control Act, as amended (P.L. 92-500), and permits granted under G.S. 143-215.1 by the Environmental Management Commission. However, ~~any~~ combustion products removed from impoundments subject to permits under Section 402 of the Water Pollution Control Act, as amended (P.L. 92-500), and permits granted under G.S. 143-215.1 by the Environmental Management Commission shall be a solid waste. Any sludges that meet the criteria for hazardous waste under RCRA shall also be a solid waste for the purposes of this Article.

c. Oils and other liquid hydrocarbons controlled under Article 21A of Chapter 143 of the General Statutes. However, any oils or other liquid hydrocarbons that meet the criteria for hazardous waste under RCRA shall also be a solid waste for the purposes of this Article.

d. Any source, special nuclear or byproduct material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2011).

e. Mining refuse covered by the North Carolina Mining Act, G.S. 74-46 through 74-68 and regulated by the North Carolina Mining and Energy Commission (as defined under G.S. 143B-293.1). However, any specific mining waste that meets the criteria for hazardous waste under RCRA shall also be a solid waste for the purposes of this Article.

f. Recovered material."

SECTION 8.(b) G.S. 143-213(18) reads as rewritten:

"(18) "Waste" shall mean and include the ~~following:~~following with the exception of solid waste as defined by G.S. 130A-290(a)(35):

a. "Sewage," which shall mean water-carried human waste discharged, transmitted, and collected from residences, buildings, industrial establishments, or other places into a unified sewerage system or an arrangement for sewage disposal or a group of such sewerage arrangements or systems, together with such ground, surface, storm, or other water as may be present.

b. "Industrial waste" shall mean any liquid, solid, gaseous, or other waste substance or a combination thereof resulting from any process of industry, manufacture, trade or business, or from the development of any natural resource.

c. "Other waste" means sawdust, shavings, lime, refuse, offal, oil, tar chemicals, dissolved and suspended solids, sediment, and all other substances, except industrial waste, sewage, and toxic chemicals which may be discharged into or placed in such proximity to the water that drainage therefrom may reach the water.

d. "Toxic waste" means that waste, or combinations of wastes, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformities, in such organisms or their offspring."

PART IX. TEMPORARY MORATORIUM ON STRUCTURAL FILL

SECTION 9.(a) Moratorium Established. – Notwithstanding rules adopted by the Commission for Public Health there is hereby established a moratorium on the use of coal combustion products as a structural fill unless the fill is used under an airport runway or base or sub-base of a concrete or asphalt paved road, constructed under the authority of a public entity. The moratorium established by this section shall be in effect until rules are amended by the Commission for Public Health for the management of coal combustion products.

SECTION 9.(b) For purposes of this section, the moratorium does not apply to structural fill sites of less than 5,000 cubic yards.

SECTION 9.(c) This section is effective when this act becomes law and applies only to those coal combustion products structural fills that have not begun construction or have not received a permit to begin construction on or before that date.

PART X. COAL COMBUSTION PRODUCTS IMPOUNDMENT CLOSURE

SECTION 10.(a) Article 21 of Chapter 143 of the General Statutes is amended by adding a new Part to read:

"Part 12. Coal Combustion Products Impoundment Closure

"**§ 143-215.74Q. Closure of Coal Combustion Products Impoundments to Protect Groundwater and Surface Water**

(a) The Department shall establish the priority for closure of all active and inactive investor-owned coal combustion products impoundments. Once priorities for closure are established, the owner of the active and inactive ash ponds shall propose a schedule for beginning closure activities for each prioritized facility, and shall submit a proposed schedule

in accordance with the time frame established by the Department. Six months (180 days) before the scheduled closure activities begin, the owner must submit five (5) paper copies and one (1) electronic copy of a closure plan to the Division of Water Resources for approval. The closure plan shall include the following sections:

(1) Facility and Ash Pond Description. – A description of the operation of the facility that shall include, but not be limited to:

a. Site and history of site operations; ash handling and storage operations.

b. Types of flows discharging into the impoundment.

c. Estimated volume of material contained in the impoundment.

d. Analysis of the structural integrity of dikes or dams associated with impoundment.

e. Composition of liner (lined or unlined pond).

f. Summarized results of any previous environmental investigations performed at the site.

(2) Site Map**.** – Site maps that illustrate the following:

a. All structures associated with operations of the ash ponds within the power plant property boundary.

b. All identified current and former ash disposal and storage areas including structural fills.

c. All property boundaries and established compliance boundaries.

d. All potential receptors (i.e. water supply wells, surface water bodies (streams, springs, lakes, ponds and other surface drainage features, and wetlands) within 2,640 feet from the compliance boundary.

e. Topographic contour intervals of the site shall be selected to enable an accurate representation of site features and terrain and in most cases should be less than 20 feet intervals.

f. Locations of all on-site active and inactive Division of Waste Management permitted solid waste facilities along with their associated compliance boundaries and monitoring wells.

g. All existing and proposed groundwater monitoring wells associated with monitoring of the active and inactive ash ponds.

h. All existing and proposed sample collection locations associated with the operation or closure of the impoundment(s).

(3) Hydrogeologic, Geologic, and Geotechnical Investigations. – The results of a hydrogeologic, geologic, and geotechnical investigation of the facility, that shall include, but not be limited to:

a. A description of the hydrogeology and geology of the site.

b. A description of the stratigraphy of the geologic units underlying the ash ponds.

c. The saturated hydraulic conductivity for the ash and liner if present.

d. The geotechnical properties for the ash, liner if present, and the uppermost identified stratigraphic unit underlying the impoundment including the soil classification by Unified Soil Classification System, in-place moisture content, particle size distribution, Atterberg limits, specific gravity, effective friction angle, maximum dry density, optimum moisture content, and permeability.

e. A chemical analysis of the impoundment water, ash, and ash-affected soil. Identify constituents with concentrations found to be in excess of 15A NCAC 02L. 0202 Groundwater Quality Standards including all laboratory results for these analyses.

f. Summary tables of historical records of groundwater sampling results.

g. A map that illustrates the potentiometric contours and flow directions for all identified aquifers underlying impoundments (shallow, intermediate, and deep) and the horizontal extent of areas where 15A NCAC 02L. 0202 Groundwater Quality Standards are exceeded.

h. Cross-sections that illustrate the following: vertical and horizontal extent of the ash within the impoundment; Stratigraphy of the geologic units underlying the ash pond and the vertical extent of areas where 15A NCAC 02L. 0202 Groundwater Quality Standards are exceeded.

(4) Hydrogeologic Modeling. – The results of groundwater modeling of the site that shall include, but not be limited to:

a. An account of the design of the proposed pond closure method that: is based on the site hydrogeologic conceptual model developed, includes predictions on post-closure groundwater elevations, groundwater flow directions and velocities including the effects on/from the potential receptors, and includes predictions at the compliance boundary for constituents identified in subsubdivision e. of subdivision (3) of this subsection as exceeding 15A NCAC 2L .0202 Groundwater Quality Standards.

b. Predictions that include the effects on the groundwater chemistry, and should describe migration, concentration, mobilization and fate of the constituents that exceed 15A NCAC 2L standards before and after closure activities including the effects on/from potential receptors.

c. A description of the groundwater trend analysis methods used to demonstrate compliance with 15A NCAC 02L .0202 Groundwater Quality Standards and 15A NCAC 02L .0106.

(5) Closure Method. – The owner shall provide a proposed closure method. The proposed closure method must demonstrate that where groundwater quality is degraded, restoration to the level of the groundwater standards will be obtained as is economically and technically feasible. The selected proposed closure method shall be from one of the following alternatives, and shall include, but not be limited to:

a. A description of the closure method identified for each ash pond. Closure methods include:

i. Closure-in-Place. – This alternative entails placing an engineered cover system such as a composite geomembrane, impermeable clay, and/or a soil cover over the ash pond. No ash or ash-affected soil would leave the ash pond area.

ii. Clean Closure. – This alternative assumes that all coal ash can be excavated and the ash pond area will be returned to a non-erosive and stable condition.

iii. Hybrid Closure. – This alternative entails consolidating ash and ash-affected soil into as small area as feasible within the ash pond footprint. An engineered cover system (e.g. composite geomembrane, impermeable clay, and/or a soil cover) would be installed over the consolidated ash and ash-affected soil. The remaining ash pond area will be returned to a non-erosive and stable condition.

iv. Other. – Must be equally or more effective at protecting water quality than the other closure options.

b. A description concerning any plans for beneficial reuse of the coal ash under 15A NCAC 02T .1200 (if applicable).

c. All engineering drawings, schematics, and specifications for the proposed closure method. If required by G.S. 89C, engineering design documents should be prepared, signed, and sealed by a professional engineer. Describe the construction quality assurance and quality control program including the responsibilities and authorities; monitoring and testing activities; sampling strategies; and reporting requirements.

d. A description of the provisions for disposal of wastewater through an NPDES permit or any other relevant permit.

e. A description of the provisions for the final disposition of the ash. If the ash is to be removed, the owner must identify the site location and the permit number for ash sent to a permitted disposal site. If the ash is left in place, the owner must provide a description of how the ash will be stabilized during closure and post closure and an estimate of the volume of ash left in place.

f. A list of all permits that will need to be acquired or modified to complete closure activities.

(6) Post-Closure Plan. – The owner shall provide post-closure plans for a minimum of 30 years. If required by G.S. 89C, these plans should be signed and sealed by a professional engineer. These plans shall include, but not be limited to:

a. A description of the post-closure care and maintenance activities.

b. A demonstration of the long-term control of all leachate, affected groundwater, and stormwater.

c. A description of a groundwater monitoring program that includes:

i. Post closure groundwater monitoring, including parameters to be sampled and sampling schedules.

ii. Any additional monitoring well installations, including a map with the proposed location/s and well construction details.

iii. A description of the actions proposed to mitigate statistically significant increasing groundwater quality trends.

d. The length of the post-closure care period. This period may be proposed to be decreased or the frequency and parameter list modified if the owner demonstrates that the reduced period or modifications are sufficient to protect human health and the environment and this demonstration is approved by the Department. The length of the post-closure care period may be increased by the Department at the end of the post-closure period if there are statistically significant increasing groundwater quality trends or contaminant concentrations have not decreased to a level protective of human health and the environment. If the owner determines that the post-closure care period is no longer needed and the Department agrees, the owner shall provide a certification, signed by a registered professional engineer, verifying that post-closure care has been completed in accordance with the post-closure plan.

(7) Schedules. – The owner shall provide an estimate of the milestone dates for all activities related to closure and post-closure.

(8) Future Site Use. – The owner shall describe the anticipated future use of the site and the necessity for deed restrictions following closure.

(9) Final Submittal Determination and Approval**.** – Within 90 days of receipt of a completed closure plan, the Department will send a letter either approving the closure plan or requesting additional information. Upon approval, the owner must begin closure activities within 30 days."

SECTION 10.(b) Part 3 of Article 21 of Chapter 143 of the General Statutes is amended by adding a new section to read:

"**§ 143-215.37A. Closure of coal combustion products impoundments to render such facilities exempt from the North Carolina Dam Safety Law of 1967.**

(a) Decommissioning Request Submittal. – Any party seeking to decommission a coal combustion products impoundment facility shall submit a document from the ownership entity requesting that the facility be decommissioned to the Division of Energy, Mineral, and Land Resources. The document shall include as a minimum the following:

(1) A proposed geotechnical investigation plan scope of work. Upon preliminary plan approval as described below, the owner shall proceed with necessary field work and submit a geotechnical report with site specific field data indicating that the containment dam and material impounded by the containment dam are stable, and that the impounded material is not subject to liquid flow behavior under expected static and dynamic loading conditions. Material testing should be performed along the full extent of the containment dam and in a pattern throughout the area of impounded material.

(2) A topographic map depicting existing conditions of the containment dam and impoundment area at two foot contour intervals or less.

(3) If the facility contains areas capable of impounding by topography, a breach plan must be included which ensures that there shall be no place within the facility capable of impounding. The breach plan shall include at minimum proposed grading contours superimposed on the existing topographic map as well as necessary engineering calculations, construction details and construction specifications.

(4) A permanent vegetation and stabilization or capping plan by synthetic liner or other means if needed. These plans shall include at minimum, proposed grading contours superimposed on the existing topographic map where applicable as well as necessary engineering calculations, construction details, construction specifications and all details for the establishment of surface area stabilization.

(5) A statement indicating that the impoundment facility has not received sluiced coal ash material for at least three years and there are no future plans to place coal ash in the facility by sluicing methods.

(b) Preliminary Submittal Determination and Approval. – The submitted document shall undergo a preliminary review by the Division of Energy, Mineral, and Land Resources for completeness and approval of the proposed geotechnical investigation plan scope of work.

(1) The owner shall be notified by letter with results of the preliminary review including approval or revision request relative to the proposed scope of work included in the geotechnical investigation plan.

(2) Upon receipt of a letter issued by the Division approving the preliminary geotechnical plan scope of work, the owner may proceed with field work and development of the geotechnical report.

(c) Final Submittal Determination and Approval. – Upon receipt of the geotechnical report, the Division of Energy, Mineral, and Land Resources shall complete the submittal review.

(1) If it is determined that sufficient evidence has been presented to clearly show that the facility no longer functions as a dam in its current state, a letter decommissioning the facility shall be issued by the Division of Energy, Mineral, and Land Resources and the facility shall no longer be under jurisdiction of the Dam Safety Law of 1967, G.S. 143-215.23.

(2) If modifications such as breach construction and/or implementation of a permanent vegetation or surface lining plan are needed, such plans shall be reviewed per standard procedures for consideration of letter of approval to modify and/or breach.

(3) If approved, such plans shall follow standard procedure for construction including: construction supervision by a North Carolina registered professional engineer, as-built submittal by a North Carolina registered professional engineer, and follow up final inspection by Division of Energy, Mineral, and Land Resources staff.

(4) Final approval shall be issued by the Division of Energy, Mineral, and Land Resources in the form of a letter decommissioning the facility and the facility shall no longer be under jurisdiction of the Dam Safety Law of 1967, G.S. 143-215.23."

PART XI. CLOSURE PLANS SCHEDULE

SECTION 11. Notwithstanding G.S. 143-215.74Q and G.S. 143-215.37A as enacted by Sections 10.(a) and 10.(b) of this act:

(a) The closure plan for Riverbend shall be submitted to the Department no later than 60 days after the Act is ratified and shall include detailed provisions that ensure all ash in the impoundments will be moved to a lined structural fill, a lined landfill, or an alternative disposition approved by Department.

(b) The closure plan for Asheville shall be submitted to the Department no later than 60 days after the Act is ratified and include detailed provisions that ensure all ash in the impoundments will be moved to a lined structural fill, a lined landfill, or an alternative disposition approved by the Department.

(c) The closure plan for Dan River shall be submitted to the Department no later than 90 days after the Act is ratified and include detailed provisions that ensure all ash in the impoundments will be moved to a lined structural fill, a lined landfill, or an alternative disposition approved by the Department.

(d) The closure plan for Sutton shall be submitted to the Department no later than 90 days after the Act is ratified, and include detailed provisions that ensure all ash in the impoundments will be moved to a lined structural fill, a lined landfill, or an alternative disposition approved by Department.

PART XII. APPROPRIATION

SECTION 12. There is appropriated from the General Fund to the Department of Environment and Natural Resources the sum of one million four hundred thousand dollars ($1,400,000) for the 2013-2014 Fiscal Year to establish nineteen permanent positions and associated operating costs to implement this act."

PART XIII. EFFECTIVE DATE

SECTION 13. This act is effective when it becomes law.

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2015

S **D**

SENATE BILL 716
Commerce Committee Substitute Adopted 5/21/15
PROPOSED HOUSE COMMITTEE SUBSTITUTE S716-PCS45379-TD-36

Short Title: Mountain Energy Act of 2015. (Public)

Sponsors:

Referred to:

May 20, 2015

A BILL TO BE ENTITLED

AN ACT TO: (1) DIRECT THE NORTH CAROLINA UTILITIES COMMISSION TO RENDER AN EXPEDITED DECISION, UNDER CERTAIN CONDITIONS, ON AN APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR AN APPLICANT TO CONSTRUCT A GENERATING FACILITY THAT USES NATURAL GAS AS THE PRIMARY FUEL AND (2) MODIFY CERTAIN REQUIREMENTS UNDER THE COAL ASH MANAGEMENT ACT OF 2014 FOR COAL ASH SURFACE IMPOUNDMENTS LOCATED ON SITES AT WHICH ALL COAL-FIRED GENERATING UNITS PRESENT ON THOSE SITES WILL PERMANENTLY CEASE OPERATIONS BY JANUARY 31, 2020.

The General Assembly of North Carolina enacts:

SECTION 1. Notwithstanding G.S. 62-110.1, the Commission shall provide an expedited decision on an application for a certificate to construct a generating facility that uses natural gas as the primary fuel if the application meets the requirements of this section. A public utility shall provide written notice to the Commission of the date the utility intends to file an application under this section no less than 30 days prior to the submission of the application. When the public utility applies for a certificate as provided in this section, it shall submit to the Commission an estimate of the costs of construction of the gas-fired generating unit in such detail as the Commission may require. G.S. 62-110.1(e) and G.S. 62-82(a) shall not apply to a certificate applied for under this section. The Commission shall hold a single public hearing on the application applied for under this section and require the applicant to publish a single notice of the public hearing in a newspaper of general circulation in Buncombe County. The Commission shall render its decision on an application for a certificate, including any related transmission line located on the site of the new generation facility, within 45 days of the date the application is filed if all of the following apply:

(1) The application for a certificate is for a generating facility to be constructed at the site of the Asheville Steam Electric Generating Plant located in Buncombe County.

(2) The public utility will permanently cease operations of all coal-fired generating units at the site on or before the commercial operation of the generating unit that is the subject of the certificate application.

(3) The new natural gas-fired generating facility has no more than twice the generation capacity as the coal-fired generating units to be retired.

SECTION 2.(a) Section 3(b) of S.L. 2014-122 reads as rewritten:

"**SECTION 3.(b)** Notwithstanding G.S. 130A-309.211 or G.S. 130A-309.212, as enacted by Section 3(a) of this act, and except as otherwise preempted by the requirements of federal law, the following coal combustion residuals surface impoundments shall be deemed high-priority ~~and, as soon as practicable, but no later than August 1, 2019,~~ and shall be closed in conformance with Section 3(c) of this ~~act:~~act as follows:

(1) Coal combustion residuals surface impoundments located at the Dan River Steam Station, owned and operated by Duke Energy Progress, and located in Rockingham ~~County.~~County, as soon as practicable, but no later than August 1, 2019.

(2) Coal combustion residuals surface impoundments located at the Riverbend Steam Station, owned and operated by Duke Energy Carolinas, and located in Gaston ~~County.~~County, as soon as practicable, but no later than August 1, 2019.

(3) Coal combustion residuals surface impoundments located at the Asheville Steam Electric Generating Plant, owned and operated by Duke Energy Progress, and located in Buncombe ~~County.~~County, as soon as practicable, but no later than August 1, 2022.

(4) Coal combustion residuals surface impoundments located at the Sutton Plant, owned and operated by Duke Energy Progress, and located in New Hanover ~~County.~~County, as soon as practicable, but no later than August 1, 2019."

SECTION 2.(b) The requirements of subsections (c) through (f) of G.S. 130A-309.210 shall not apply to coal combustion residuals surface impoundments and electric generating facilities located at the Asheville Steam Electric Generating Plant in Buncombe County.

SECTION 2.(c) This section becomes effective August 1, 2016, if, on or before that date, the North Carolina Utilities Commission has issued a certificate of public convenience and necessity to Duke Energy Progress for a new natural gas-fired generating facility, pursuant to Section 1 of this act, based upon written notice submitted to the Commission from Duke Energy Progress that it will permanently cease operations of all coal-fired generating units at the Asheville Steam Electric Generating Plant located in Buncombe County no later than January 31, 2020.

SECTION 3. Except as otherwise provided, this act is effective when it becomes law.